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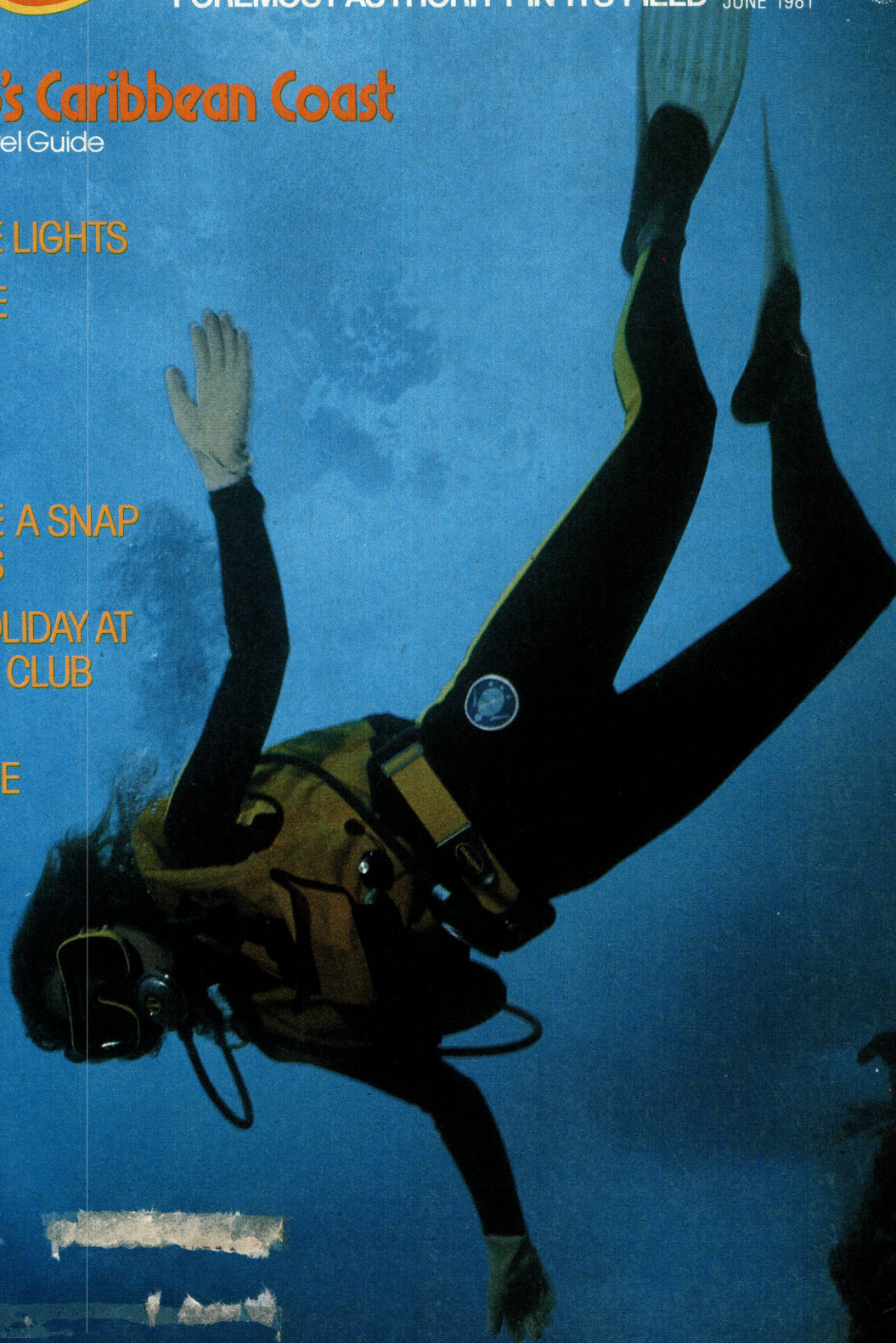
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NIKONOS IV-A

skin diver

Volume Thirty Number Six

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COVER

St. Thomas Diving Club manager, Pam Dickinson, descends the vertical face of fabulous Sail Rock, off St. Thomas in the United States Virgin Islands. The photograph was taken by Geri Murphy.

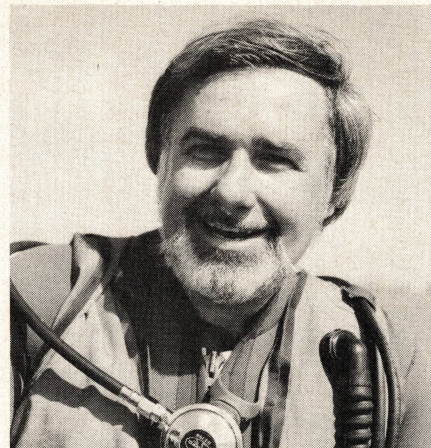


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SDM Editorial

BY THE PUBLISHER

CHANGES IN THE WIND



The 1980's may very well be the most challenging, and yet most exciting, decade for the dive instructor associations. It is likely to be a period of revolutionary change not only in how diving is taught, but also in what is taught.

The 1970's were a decade of expansionism and furious growth. It was a period of immense productivity, with various training associations turning out textbooks, instructor manuals, certification standards and audio/visual training aids. The associations were preoccupied with the basic job of building a truly national organization, complete with headquarters staff and all of the supportive materials.

As we plunge into the 1980's, the challenge is quite different. Now there is time to ponder the state-of-the-art in scuba training, and the associations are beginning to ask themselves some very interesting questions. Dissatisfied with the current dropout rate among scuba students and certified divers, many leading instructors are beginning to challenge the traditional philosophies of scuba instruction. They are concerned with teaching effectiveness rather than the number of course hours or the number of dives. Here are just a few sample questions being posed by the instructor agencies:

Is the buddy system really working or are we just kidding ourselves? How many divers use the buddy system effectively and how many abuse it? Has the system actually saved lives or is this concept just a theory? Has the system contributed to dive accidents and why? Can the buddy system concept be modified or improved so that it is more effective?

Should emergency diver rescue and first-aid treatment be part of basic scuba class, or do such gory details scare off beginning students? Are instructors over-teaching in the basic scuba class? Are instructors putting too much emphasis on dive medicine and accident management problems? Is this

type of material being taught at the wrong time or in the wrong way?

Is there too much emphasis on physical fitness and swimming exercises during the initial stages of a basic scuba course? Are new students being deliberately pushed beyond their physical limits before they have an opportunity to properly condition themselves? Should a new scuba student be able to swim 400 yards on the first night of scuba class or on the last night of the course? Is premature physical fitness testing turning away new students who might otherwise become good divers?

Should the decompression tables be taught in basic scuba class or is this material too confusing for the beginning student? Do basic students actually remember what they have been taught about the tables and repetitive dive computations or is this material over their heads? Should instructors stick to the basics and concentrate on elementary scuba skills? Is decompression diving a topic which should be scheduled for intermediate or advanced classes?

Should all open water training dives be conducted in tropical ocean environments? While all instructors acknowledge the critical importance of open water training dives, they have yet to resolve this dilemma satisfactorily. Winter weather, stormy seas and frozen lakes preclude the timely completion of open water training and final certification. Should today's scuba students be prepared and trained in the warm water environments they eventually end up in on vacation trips?

Has the basic scuba class and certification become too long, too complex, and too expensive? Have the instructors driven the costs of basic scuba training way beyond the reach of many Americans? Has high priced training become an instant turn-off and discouraged many people from even trying this sport? Is there a way to reduce course content and costs without compromising the quality

of instruction or the basic safety required?


Do we need another step in the staircase of scuba education? Do we need a student level training program, with a certification card that reads Student Diver? Do we need a better system for identifying the specific proficiency levels of a certified diver?

Is the transition from pool training to open water training too abrupt? Is it too much to expect a new student to go from swim trunks in a warm swimming pool to a full one-quarter inch wetsuit, 20 pound weightbelt and full scuba gear on a rocking dive boat in the middle of the ocean? How can scuba instructors develop a smoother, more gradual transition?

These are but a few of the challenging questions which instructor associations will have to face in the coming months and years. Today's scuba training methods are good, but far from perfect.

Will there be controversy? You bet! Change never comes easy and seldom does it come quickly. There will be resistance to new ideas and plenty of discussion before modifications are made. There may even be heated debate on certain issues. This time, however, the discussion will be different.

The instructor associations of today are far better equipped for study, analysis and constructive redesign. They have the computers, the headquarters staff personnel and the communications network to approach these problems in a scientific manner. There will be student surveys, pilot teaching programs and eventually the development of much more effective scuba courses. This time, the changes will be based on facts and figures rather than personal opinions or unproven theories.

Changes are in the wind and you can look forward to a great deal of activity from the instructor associations in the U.S. And you will be reading about these changes right here in SKIN DIVER. 

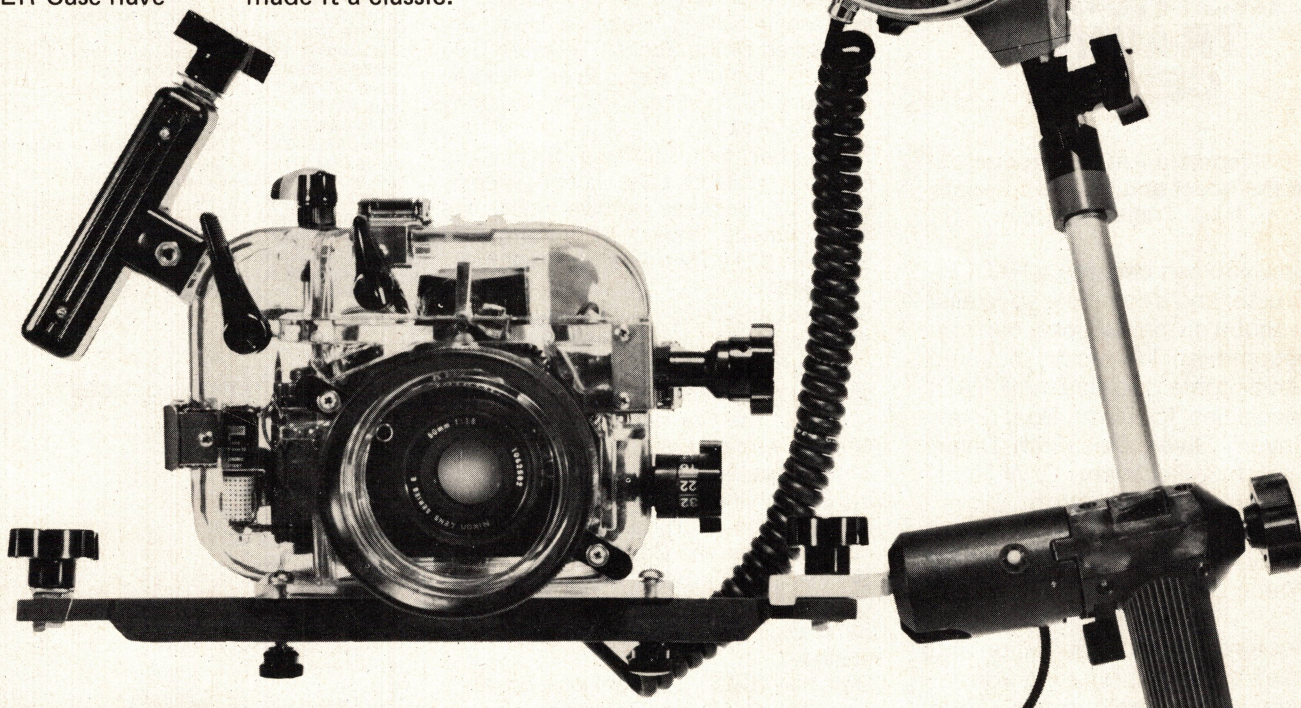
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Diver's Calendar

June 2-July 31 Treasure of the Conception, on exhibit at the Hershey Museum of American Life, Hershey, PA. (Contact: Hershey Museum of American Life, 300 Park Blvd., Hershey, PA 17033; (717) 534-3439)

June 27 Sixth Annual All Women Scuba Dive, Rockport, Mass. (Contact: Valerie J. Costelloe, Aquawomen, P.O. Box 775, Central Square, Cambridge, MA 02139)

August 7-10 Third annual People Interested in Diving Treasure Hunt, co-sponsored by the Sunken Treasure Dive Shop. (Contact: Rich Best, Sunken Treasure Dive Shop, RD#4, Jersey Shore, PA 17740)

September 5-7 Montana State Dive Festival, Holland Lake Lodge, Seeley Lake, MT. Lectures on dive safety and high altitude dives. (Contact: Ken Stevens, 3711 Third Ave. N, Great Falls, MT 59401)

September 25-26 Fifth Annual Cayman Party, Houston Oaks Hotel, Grand Cayman, BWI. Slide presentations and dive music by Barefoot Man and his band. (Contact: The Cayman Party, Box 1249, Grand Cayman, BWI)

September 26-27 Sixth Annual Sonoma County Diver Rescue Workshop, Santa Rosa Junior College, Santa Rosa, CA. (Contact: Sonoma County Diver Rescue Workshop, P.O. Box 3967, Santa Rosa, CA 95402, Attention: Mel Cumins — Send a self-addressed envelope with 36¢ postage)

October 18-23 Recognition and Management of Diving Casualties course, Travelodge Tower, San Diego, CA. (Contact: Edith Bookstein, Office of Continuing Education, M-017, UCSD School of Medicine, La Jolla, CA 92093)

October 21-23 Annual meeting of the North Pacific Chapter of the Undersea Medical Society, Benson Hotel, Portland, OR. (Contact: Dr. Joseph A. Parent, Jr., Mt. Hood College Center, 10100 N.E. Prescott, Portland, OR 97220)

November 7 Fifth Annual Dive New Jersey, Rutgers University. Sponsored by the New Jersey Council of Diving Clubs and hosted by the Rutgers University Scuba Club. (Contact: Joe Pagan, 221 A Bradford Ave., Cedar Grove, NJ 07009; (201) 857-1321)

November 14 Gillmen Club Underwater Film Festival, East Catholic High School auditorium, Manchester, CT. Stan Waterman will be the featured speaker. (Contact: Bob Bockholdt, c/o Inner-space Diving Supply, 598 Center St., Manchester, CT 06040)

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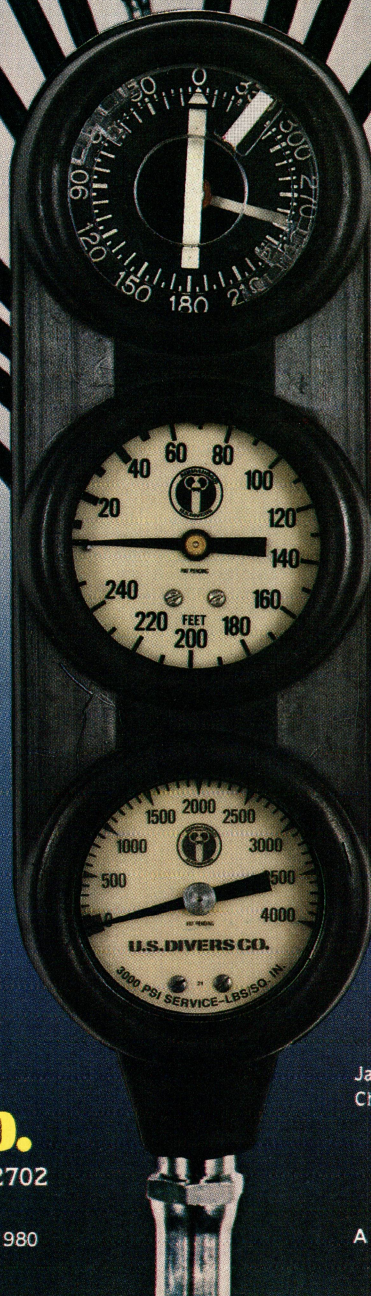
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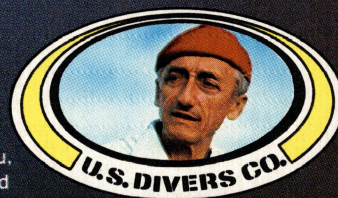
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GREENSTONE AWARD

The Leonard Greenstone Diving Safety Award will be presented for the sixth year this November at IQ 12 in Toronto.

Administered by NAUI, this award encourages the development of all forms of dive safety. Anyone who has conceived and developed an approach, idea, device or program that has contributed to dive safety is eligible, regardless of his/her dive organization affiliation. Nominations are solicited from the dive community at large and should be sent to: Leonard Greenstone Award, c/o NAUI Headquarters, P.O. Box 630, Colton, CA 92324. All nominations should be received by August 1. An Award Selection Committee, appointed by the NAUI Board of Directors, makes the final choice.

Leonard Greenstone, founder of the award, began his dive career as a Navy salvage diver more than 30 years ago. He is a NAUI/L.A. County certified instructor.

Past recipients of the award include: Merrill P. Spencer, M.D., Lee H. Somers, Ph.D., Glen H. Egstrom, Ph.D., Charles V. Brown, M.D. and William L. High. »

REGULATOR RECALL

The Consumer Product Safety Commission has officially approved a new molded Delrin seat, 2018-2-D, to replace the original Teflon seat or the interim three piece brass O-ring seat for the White Stag Deep V regulator. Ocean Dynamics International is assisting in this recall by making these seats available to those concerned.

Seats and instructions for installation may be obtained by calling (800) 421-5356 or (213) 538-9540, or writing Ocean Dynamics International, 363 W. Victoria St., Gardena, CA 90248. »

TREASURE HUNT

PID (People Interested in Diving) and the Sunken Treasure Dive Shop will again be sponsoring the Treasure Hunt, which promises to be even bigger and better than last year. First prize will be two trips for two to Freeport in the Bahamas. There will be numerous other prizes totaling up to \$15,000. The Treasure Hunt will be held August 7-10.

The weekend activities will open with a social and a dive presentation by a noted underwater photographer. The dive will take place on Saturday, followed by a banquet and prize presentation.

For more information and/or entry form for this weekend of excitement, please contact: Rich Best, Sunken Treasure Dive Shop, RD #4, Jersey Shore, PA 17740. »

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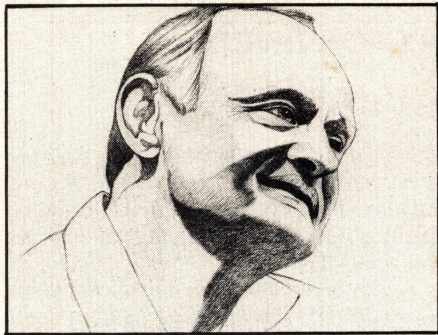
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KEEPING ABREAST

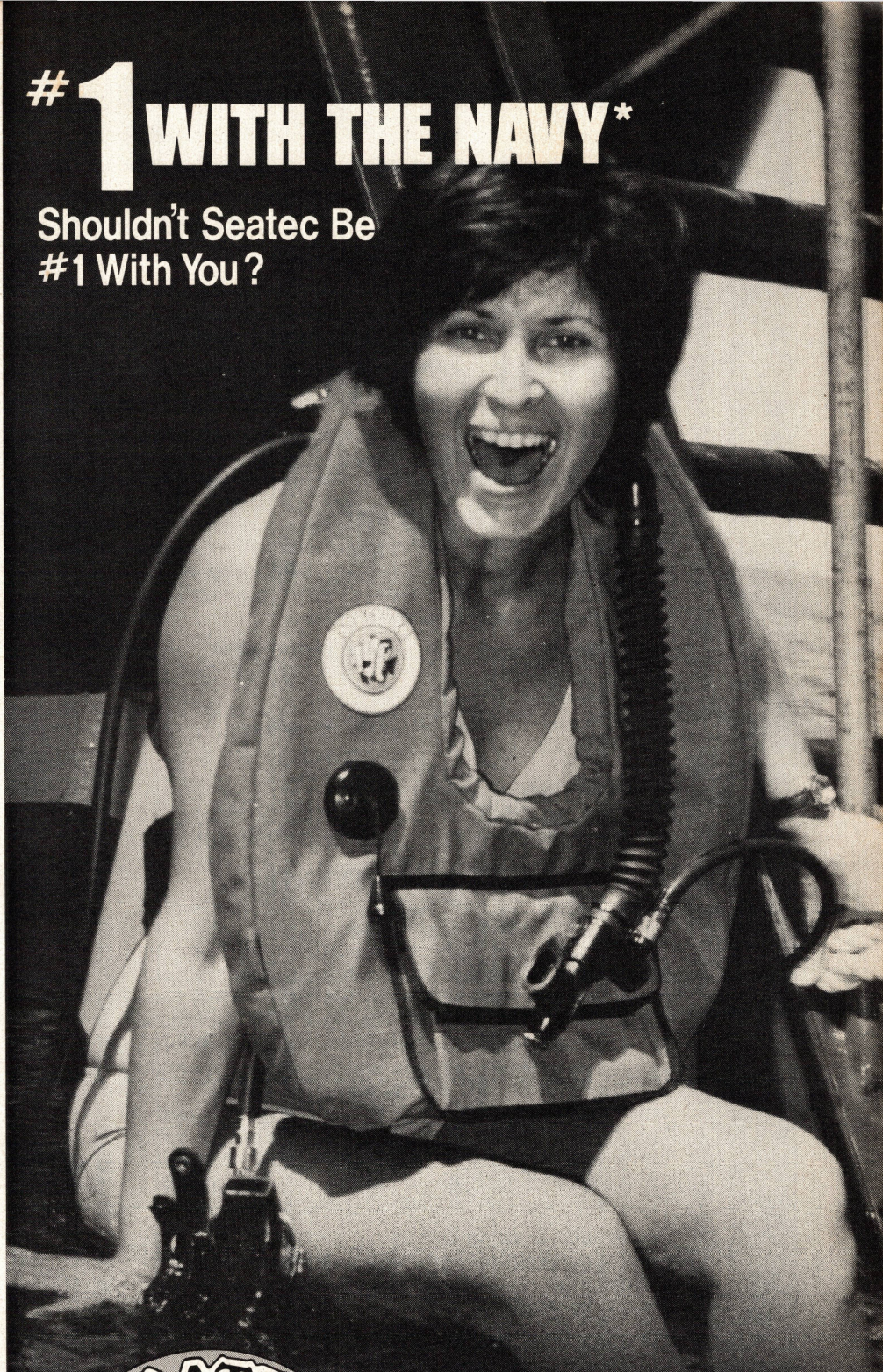
Occasionally a distaff diver will restore her sagging silhouette with silicone, and then get to wondering whether she's set herself up for breast bends. The sparse information we've gleaned so far suggests that it's not a problem. Now an innovative outfit has developed a saline filled device to better mimic the ideal real mammary appendage. One recipient diver wonders whether it could explode during ascent. In other words, could it be a booby trap?

Answer: Sorry. The federal watchdogs aren't tuned into such dilemmas, and the manufacturer has not conducted the experiments necessary to answer your query. On purely conjectural grounds, we'd say that the saline reservoir, lacking capillaries and surrounded by a silicone barrier as well as by scar and fatty tissue which will be vasoconstricted by cold, will behave as an extremely slow tissue where nitrogen absorption is concerned. Theoretically you could burst a boob, but we suspect only after a dive that leaves the world's record in tatters.

Question: Low back ache ranks high among the banes of man and woman-kind. The cause is sometimes a disk between two vertebrae that has ruptured through its retaining ligament and presses on a spinal nerve root. When a

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RX FOR DIVERS

doctor suspects this diagnosis, he may order a myelogram to pin it down. A contrast medium that is opaque to X-rays is injected into the spinal canal and outlines the protruded disk.

A Santa Monica diver underwent such a procedure. The contrast medium used was pantopaque. By misadventure, some of it flowed from the spinal canal into the brain case, and for awhile she suffered severe retching and headache. The doctors warned her never to get upside down, lest more of the stuff reach the brain. She rejected their advice and resumed diving, so far without trouble. Is she tempting fate?

Answer: Pantopaque is oil based and doesn't mix with water. After a myelogram the operator tries to remove it. Any left behind remains permanently. Being denser than cerebrospinal fluid, it runs downhill — thus the concern about upending yourself. As you discovered, upon initial contact it's far more noxious in the brain case than in the spinal canal. In time the symptoms fade. Possibly scar tissue walls off the offending material. Remnants of pantopaque in the spinal canal tend eventually to collect and remain at the openings for nerve roots, perhaps trapped by surface tension. In any case, the fact that you've been diving without incident suggests that you don't have a pool of pantopaque that's free to flow, so need fear no more.

Others who've had myelograms (there are many) should not dive unless assured that nearly all the contrast medium has been removed, or that remnants are not mobile. If there's doubt, request a fluoroscope exam on a tilt table. In future this should become a non problem, since newer contrast media are water soluble and if not fully removed will be absorbed into the circulation and excreted.

Question: Geologically, California rests on the battle zone between contending tectonic plates. Each time the fortunes of war shift, the state is shaken up. These perturbations may extend to the continental shelf and spawn abnormal wave activity. A California diver wonders whether, if he's caught underwater at the time, such waves would cause barotrauma to his lungs.

Answer: The potential for barotrauma exists when a diver holds his breath while his depth changes. Even if he doesn't move, passage of large waves can change his depth rapidly. The hazards to consider are lung squeeze as depth increases, and lung overexpansion as it decreases.

Except near the surface, pressure underwater is little affected by the passage of waves. A wave crest does increase the pressure beneath it, but by an amount that is less than the wave height and falls

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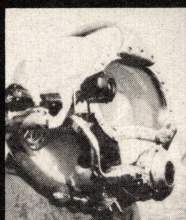
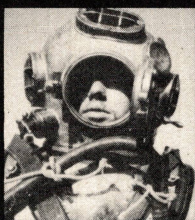
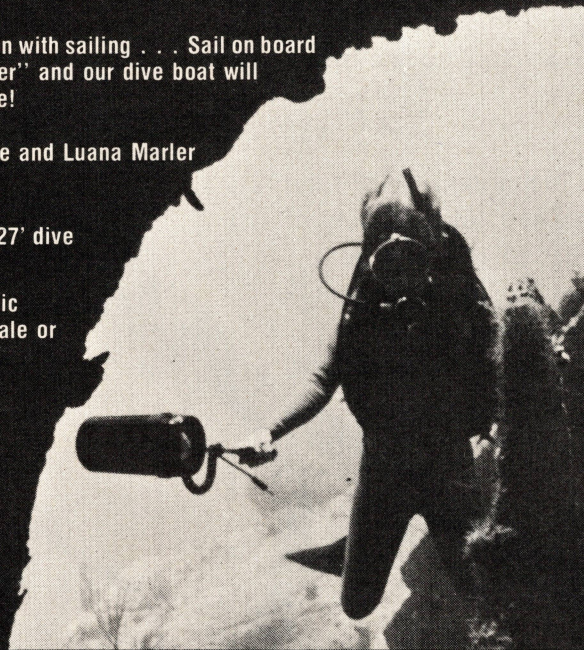
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RX FOR DIVERS

off rapidly with depth. Danger from lung squeeze is negligible, since it would require a depth increase greater than the height of any credible wave.

On the other hand, if a scuba diver near the surface takes a deep breath just as the crest of a 15 or 20 footer passes overhead, and neglects to exhale before the trough arrives, he has in effect made a rapid breathhold ascent and risks lung rupture. This mechanism is believed to have caused the death of at least one commercial diver who was ascending a line with heavy seas running.

An earthquake induced tidal wave, properly termed a *tsunami*, is something else. Small in the open water, it can crest to enormous height as it feels the bottom near land. A diver caught in such an area would find himself suddenly in a giant surf zone. He'd be swept outward then caught up and hurled shoreward with as much chance to control his progress as a baby in the banzai pipeline. We imagine lung barotrauma would be the least of his worries. But don't fret — there's never been a recorded case.

Question: David Whyte of Tampa, Florida raised his own dive buddy. His son, now 12, has logged 77 dives in the past two years, including several to 110 feet. Some instructors tell him there's nothing wrong with that, but others advise a 66 foot limit, and still others say that for health reasons, he shouldn't be diving at all. There have been no problems.

Answer: The question of the safe age to start diving is perennial, and there's no firm answer. The main considerations are that the candidate be able to handle the gear, and the environmental stress, understand the dangers, and possess good judgment and emotional stability. Equipment problems can be minimized by selecting gear appropriate for his size and strength.

We know of younger boys and girls who have dived, and we've yet to hear of a serious accident. Probably that's because their parent-buddies are extremely careful. Theoretical qualms have been expressed about the effect of a bubble in a bone growth center, the toxicity of elevated oxygen tension, etc. So far these don't seem to have been problems either.

Perhaps the greatest danger will come when some of these kids acquire enough skill and confidence to think they're hot stuff, and tackle dives for which they're not ready.

Question: Until two years ago George Harb of San Diego was an ordinary diver. Since then he's become a dizzy diver. The first time was during an ascent, the second while at depth, and the third when he ducked under some kelp. He's

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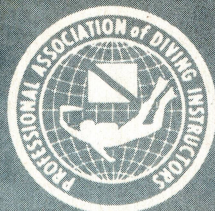
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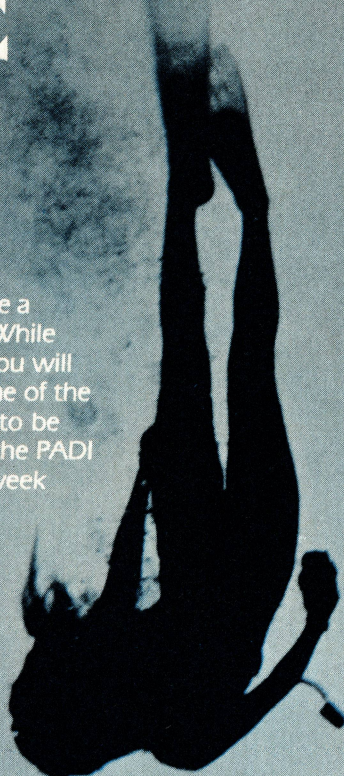


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RX FOR DIVERS

had no hearing loss, and has never been dizzy on the surface. The doctor he saw figured the cause as labyrinthine fistula — leakage of inner ear fluid into the middle ear through a tear in a round or oval window. Must he quit diving?

Answer: The diagnosis is dubious. Rupture of a window isn't likely without a fairly severe squeeze or a strong valsalva maneuver, and you admit to neither. Also, dizziness resulting from labyrinthine fistula should be more consistent than yours is.

Many things can make divers dizzy, but few fit the pattern you describe. A good possibility is alternobaric vertigo. It can affect sensitive people any time one eustachian tube functions better than the other, making the pressure in the two middle ears unequal. Usually this would occur only during ascent or descent, but it can occur at a stable depth, since middle ear air is constantly being absorbed into the blood stream. Alternobaric vertigo is often prevented by using decongestants, or relieved by reversing your direction, up or down, several feet and swallowing.

Your problem could be more complex — for example a disturbance of the orientation apparatus in the inner ear that makes you sensitive to even slight eustachian dysfunction. Dizziness below can be dangerous in various situations, as if you're rising or sinking without knowing it, or out of air and don't know which way is up. Best not to dive until an ear specialist sorts it out and tells you the problem is solved.

Question: A 45 year old epileptic of Louisville, Kentucky has been diving for three years and loves it. Dilantin and mebaral control his seizures. He wants to know if diving to 100 feet or more will be dangerous. His doctors won't give him a straight answer.

Answer: It's not known whether diving makes seizures more or less likely, or what effect pressure has on anticonvulsant medications. However, authorities are in agreement that epileptics should not dive, because a seizure that topside would be merely an annoyance would probably be fatal underwater.

Question: Jose Illan of Gaithersburg, Maryland has a tip to help you get down in spite of a balky ear. He uses the valsalva (blowing against a closed airway) but finds it ineffective once discomfort is present. When it is, he stops descending and slowly ascends until the squeeze reverses and the ear pops a bit (a little air comes out). At this point the eustachian tube behaves well, and he valsalvas enough to over-inflate the middle ear a little. He finds he can then descend further than previously before discomfort re-

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curs. If necessary, he repeats the cycle.

Answer: Mr. Illans' experience spotlights two important things about eustachian tubes. They let air out of the middle ear upon ascent more easily than they let air in upon descent, which explains why squeeze is commoner than reverse squeeze. And the greater the squeeze, the less likely they are to open at all. So any time a gently performed clearing maneuver fails to equalize the pressure in the middle ear, one should ascend until it does. He may then resume a slow descent but should repeat the maneuver frequently so as to avoid recurrence of discomfort.

Question: Tim Williams of Chico, California has been diving for seven of his 21 years. When he was 19, two very significant events took place. He was found to have diabetes requiring daily insulin shots, and he was certified for scuba diving. The instructor was very skeptical, but went along when Tim's doctor readily supported his application. Since then he's been diving regularly and has had no problem. Nonetheless, he'd like more information about this condition and how to stay out of trouble.

Answer: Most authorities concur that insulin dependent diabetics should not dive. One reason is that young diabetics are notorious for neglecting their disease at times. Another is that the disease can be "brittle," with abrupt, unexplained changes in insulin requirement. There are two common situations in which even a stable, well controlled diabetic may be hit with an unexpected and often unrecognized change in insulin requirement. The first is an acute illness of most any type. The need for insulin is likely to soar while the diabetic, because his appetite is off and he's not eating may decide to skip his regular dose. So he gets weaker. It may seem incredible that anyone would dive when ill, but people do incredible things.

The second situation is unplanned exertion, which greatly reduces the insulin requirement. If an emergency compels prolonged hard exertion to save self or buddy, the insulin dose already taken becomes excessive, and the resulting blood sugar depression can render one unconscious or too weak to function.

Some diabetics do dive and get away with it, presumably because their disease is well controlled, they observe reasonable limits, and they're lucky. If you're determined to tempt fate, there is another way to improve the odds. On dive day cut your insulin dose in half, or even skip it entirely. You'll avoid the low blood sugar hazard, and you can make up for increased blood sugar by taking extra insulin later. Let your doctor in on it



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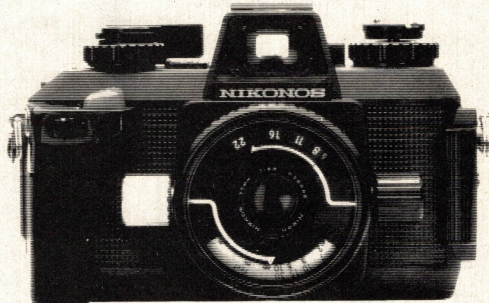
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— he can help plan strategy. And have periodic check-ups, since diabetes favors the development of cardiovascular disease, which can also jeopardize dive safety.

Question: Joe Jacobs of Atlanta, Georgia had a heart attack in 1979 when he was 51 years old. The following month he underwent a double bypass operation. The surgeon spliced in new vessels to route blood around segments of the coronary arteries that were largely blocked by arteriosclerosis, thus restoring good circulation to the heart muscle.

Joe made a good recovery. He attends a coronary rehabilitation exercise program three days a week, and takes a variety of pills to forestall another heart attack and to keep his heart rhythm regular. His doctor OK'd resumption of diving provided that water conditions were ideal. Nine months after surgery, Joe found just such conditions in the Bahamas. His dives were thoroughly enjoyable, and no ill befell him. Still, he's a bit apprehensive about what the future may hold. He's interested in learning how other divers have fared who returned to the sea after similar setbacks.

Answer: So are we. We've heard from several who've successfully resumed diving after bypass operations, and from none who've had a subsequent heart attack in the water. But this is hardly reassuring. Few victims report the failure of their parachutes either.

The issue of whether people in your circumstance can safely resume diving is highly controversial. The weight of opinion is negative, because there is evidence of increased risk and no statistical basis to refute it. Heart attacks are more likely to strike people who've had them before than people who haven't, and an attack in the water is more likely to be fatal than is one on land. Coronary disease predisposes to rhythm disturbances with weakness and possible blackout, and diving does the same. Restricting dives to ideal conditions is certainly wise, but there's still the question of being able to help one's self or buddy should the need arise.

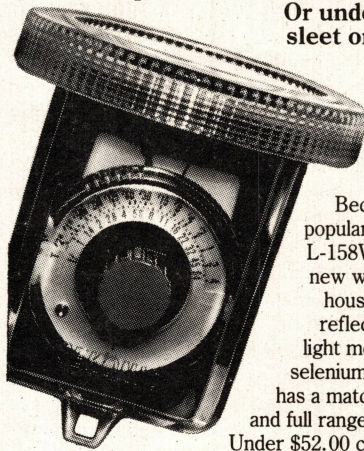
On the other hand, a truly reformed and rehabilitated heart attack survivor will have changed his lifestyle. He may be at far less risk than before, and diving, by its physical conditioning and emotional calming effects, may help maintain his rehabilitation. But caution — backsliding is a common human frailty and the factors that led to the first episode may regain ascendance.

We believe the decision should reside with the individual, if he's properly informed and honest enough to inform his buddies. But we really don't know much

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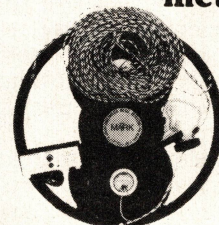
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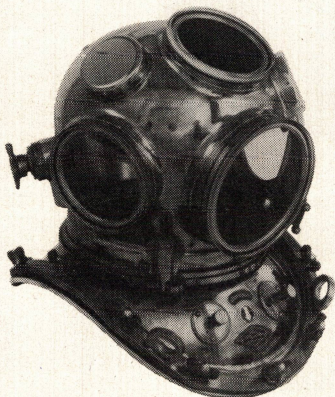
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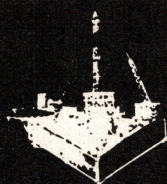
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about it. We'd like to hear from readers who can supply case histories that will add to the data base.

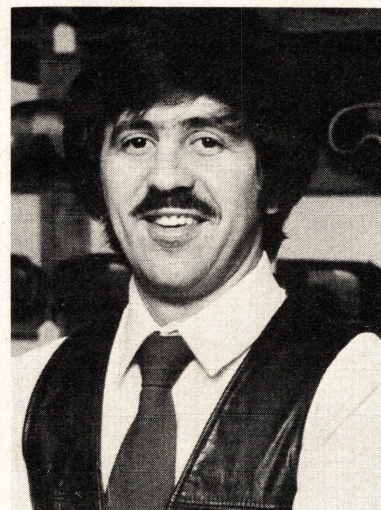
Question: Alejandro Perez of New Jersey is a little confused. He's near-sighted, and without glasses everything looks blurred. On the surface, wearing a dive mask doesn't change that, yet the same mask underwater allows him to see quite well. It doesn't make sense.

Answer: It makes sense. We just don't see how. On land the mask simply places a plain sheet of glass in front of one's eyes. It's not the same when the glass separates air from water. For reasons not entirely clear even to the slide rule set, this improves vision for both near and far sighted people.

The benefit is limited. If your vision topside is 20/40 or better, it may not be worth investing in an optical correction. Beyond that, you'll be surprised at how much more you see. From the safety point of view, the important thing is whether you can easily read your instruments, recognize your buddy, and interpret his signals. 🐠

EAST COAST DIVERS

John LeClair has assumed the position of general manager and partner of the new East Coast Divers Framingham store, according to Paul Adler, president.



John LeClair

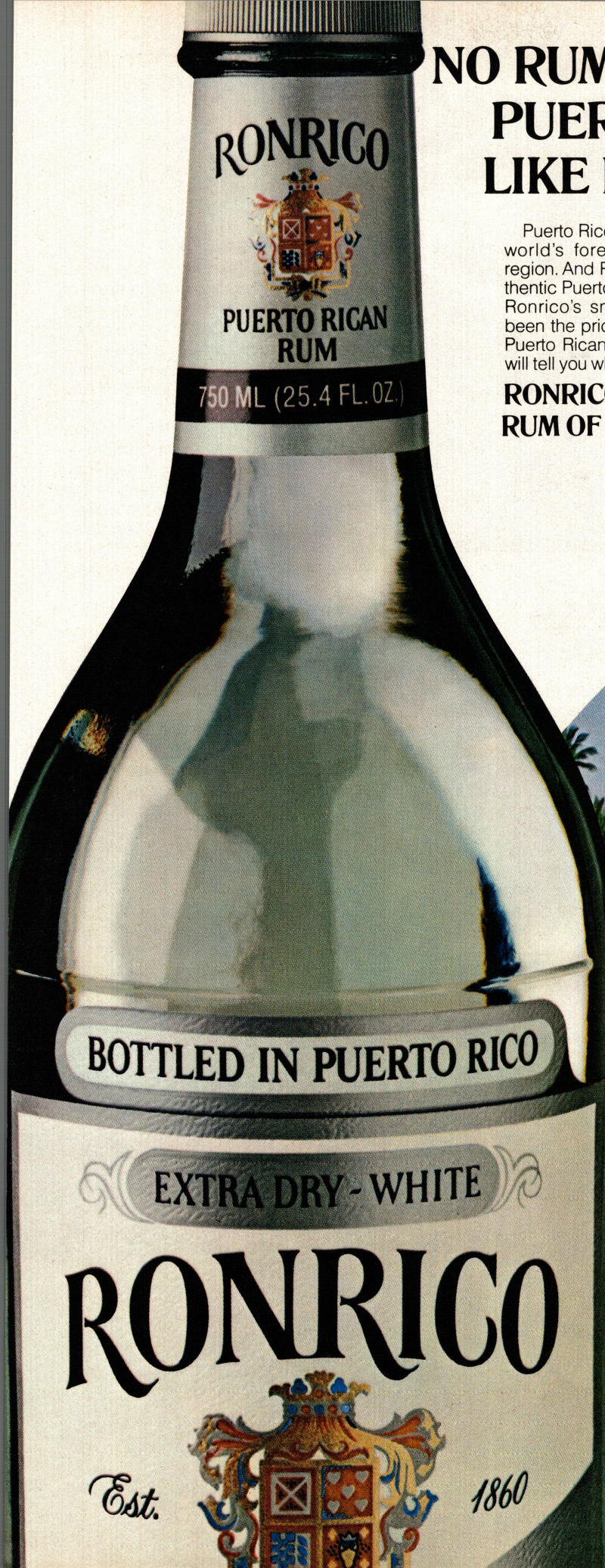
The new store will offer a full range of services including: lessons for all levels of divers, sales, service of equipment, rentals, air, and tank hydros. There will also be a boat charter service from Cape Ann Marina in Gloucester, organized trips to the Caribbean, a local dive club and a monthly newsletter.

The new store is located at 280 Worcester Road (Rt. 9 Eastbound) in Framingham, MA. 🐠

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Of course, fabric this good demands features and



detailing that work better and longer.

While such excellence carries a higher price, it results in far lower cost to you. Avons come in sizes from 8-26 feet, as dinghies (OB brackets), Sport-boats (solid stems for bigger motors) and Seariders (rigid-V under-hulls for offshore work).

Be careful and choosy: get the facts from your Avon dealer.

AVON

Avon inflatable boats available worldwide. For catalog and dealer locations, contact an Avon distributor: Seagull Marine, 1851 McGaw Avenue, Irvine, CA 92714; L.F. Burgess & Associates, 1410 Speers Road, Oakville, Ontario L6L 5M1; Inland Marine, 79 East Jackson Street, Wilkes Barre, PA 18701; Intra Corporation, 151 Mystic Avenue, Medford, MA 02155.

SWIMSUIT WEAR/CARE

Swimsuits are sensitive pieces of equipment and should be treated as such.

GENERAL FIT

Try on the suit before you make your purchase. One suit size, whether nylon or Lycra, may not fit two people of the same height, weight and body measurements.

The fit of a nylon suit can be different — some prefer a loose fit, others like their suits to fit snug. The only rule: make sure the suit is comfortable.

For women, make sure the straps of the suit do not cut into the shoulders or neck and allow freedom of movement. There should be good coverage at the side bust, but if the suit is too high around the armholes it will chafe. The leg holes should be snug but not too tight.

Lycra suits give maximum flexibility and maximum mobility.

A men's Lycra suit should be snug, but not binding. The leg holes should be snug, but not so tight as to cut off circulation. There should be no excess rippling of material across the front or back of the suit.

A woman's Lycra suit should have: straps that are tight but not restricting; good coverage on the side bust and arm-hole area; leg holes that are snug but not binding; no gaps along the neckline or backline; no excess material rippling across the front, sides or back of the suit; no excess material in the midriff area.

CARING FOR YOUR SUIT

Chlorine, body perspiration and sunlight are harmful to both nylon and Lycra fabrics. When purchasing a suit, read the sewn-in suit label and hangtag for care instructions. The following guidelines will also help you:

Do rinse out your suit in cold or lukewarm water after each time you wear it.

Do hang your suit to dry.

Do not use soaps or detergents when rinsing out your suit.

Do not dry your suit in an automatic clothes dryer.

Do not hang your suit in the sun to dry.

Do not shampoo your hair while wearing your suit, especially a Lycra suit.

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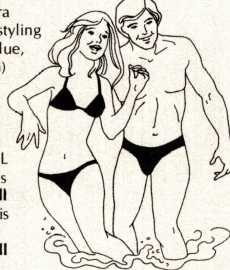
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- Women's string bikinis in S, M. \$19.95 plus \$1.00 for post. & handl



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"No, I'm not a skin diver... I just have all my air shipped in from New Zealand."

WE'RE A LOT DEEPER THAN A DIVING SCHOOL:

C.D.C. is an integral part of one of the world's largest diving contractors... Oceaneering International, Inc., which is C.D.C.'s parent company and which has three out of five of the major deep water contracts, and the majority of the most expensive underwater exploration, construction, and maintenance projects. O.I. is heavily involved in over one-third of the world's oil platforms.

The fact is:

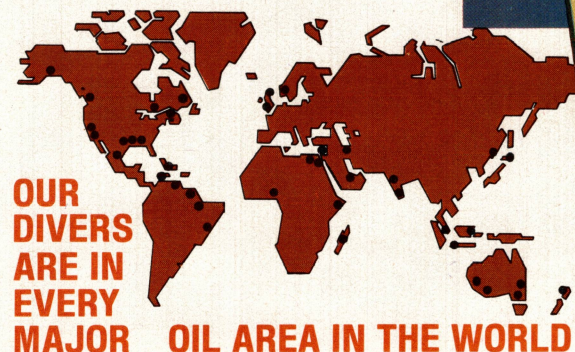
Oceaneering International designed Commercial Diving Center's training programs, moving over 40% of the graduates into key jobs under world-wide diving contracts. The others may opt to work for some 200 diving contractors who look upon C.D.C. as a producer of high-quality trainees ready to take on any job with any type of equipment.

The reason is:

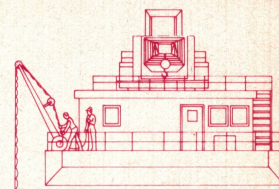
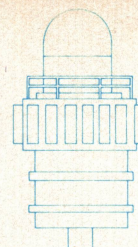
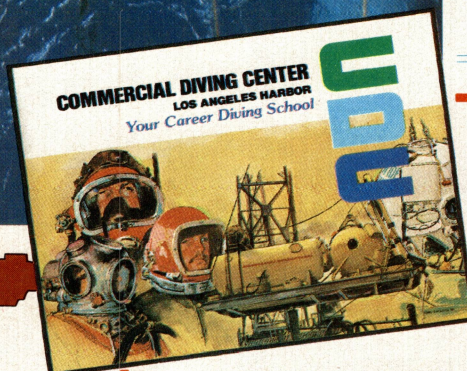
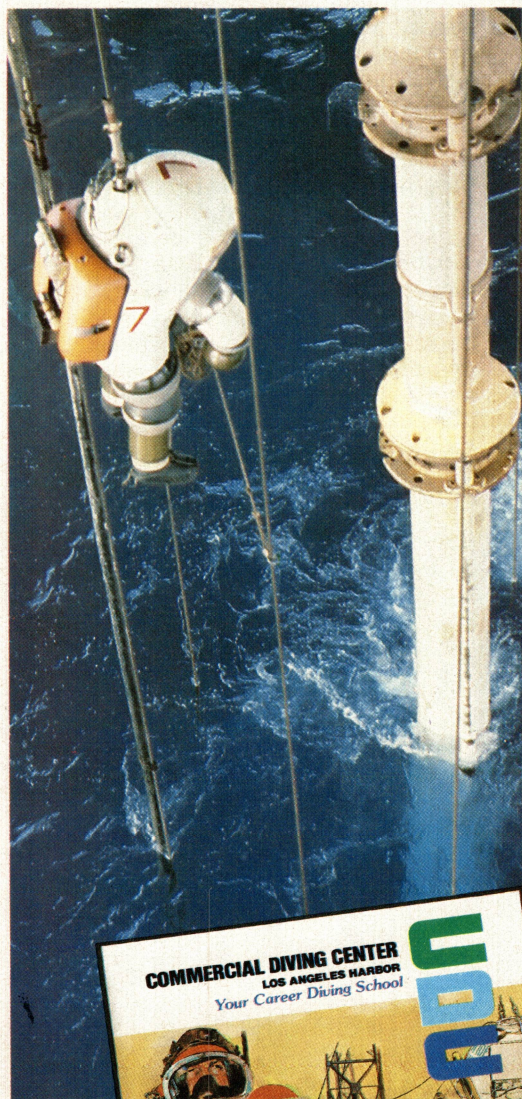
C.D.C. graduates are sought after as skilled specialists with a hands-on knowledge of the most up-to-date procedures and equipment. C.D.C. training programs are designed and constantly updated by O.I. At C.D.C. students will train on equipment they will actually use on the job in the offshore oil diving operations.

Being best means being first:

O.I. and C.D.C. have continually pioneered the commercial diving industry. In solving specialized problems, our creative staff developed: the first underwater diving bells, the first underwater hot tap, the first underwater commercial submarine lockout dives, the first 600-foot, non-saturation dives, and the first 1,000-foot diving service, plus dozens of firsts in lesser known related processes. Most recently, two C.D.C. graduates employed by O.I. successfully performed the world's record dive to a depth of 2,250 feet, surpassing O.I.'s depth record of 1980.



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DIVERS
ARE IN
EVERY
MAJOR OIL AREA IN THE WORLD**



A revolution in technology:

Constant improvement in techniques and equipment increase a diver's ability to work at greater depths safely, efficiently and effectively. To accomplish this objective, our Research and Development staff has developed deep water systems which have revolutionized the diving industry. Among these are:

ARMS — Atmospheric Roving Manipulator System

JIM — A one-atmosphere armored diving suit for deep water work

WASP — For mid-water tasks

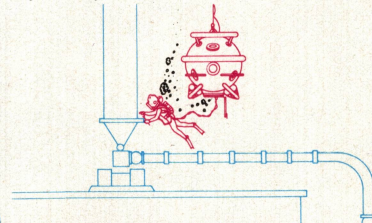
OCRA — A manned submersible

Maintaining our reputation:

To stay on top of the subsea contract market, O.I. must have the best training program available at C.D.C. O.I. is able to respond faster, complete jobs quicker and at less cost than other diving contractors because its divers, welders and technicians have superior training. To be the best, you have to train the best. And the only way to stay the best is to constantly get better.

Your role:

Your scuba certification is just the beginning of a top career in the rewarding field of commercial diving. With Oceaneering and Commercial Diving Center, you can achieve the best of that world. Send for our big, comprehensive literature package. Compare us with others, what it will cost against what you will get. We're eager for you to make this comparison. In evaluating the differences, you'll quickly see that C.D.C. offers you not just a job, but a rewarding career.



Member: Association of Commercial Diving Educators

Commercial Diving Center

Los Angeles Harbor

272 S. Fries Avenue, Wilmington, CA 90744

Telephone: (213) 834-2501

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Technifacts

BY E.R. CROSS



Dive shop owners and commercial divers receive frequent calls from boat owners whose vessels have been damaged by stranding or as a result of collision. Services required for these emergency repairs are well suited to the professional diver. This Technifacts is designed for those who wish to do this sort of work.

The number of small boats (as defined in last month's Technifacts) on the waters of lakes, rivers, and harbors of the world is increasing each year. Also more of these vessels are venturing farther from shore than at any time in maritime history. As a result, the number of

small boats having accidents and needing assistance has increased tremendously. Primarily, the first work of the salvage crew will be that which is necessary to keep the vessel afloat.

Small boat maintenance and repair by a diver will usually be required when a boat has been grounded or has collided with a submerged object or another vessel. Occasionally fire or explosion will be the cause of damage. Such emergency maintenance and repair is always considered temporary and is expected to last only until the boat can be drydocked or lifted from the water so permanent repairs can be made.

Emergency repairs are usually required some distance from a harbor. Because of this, it is necessary for the diver to have a boat and to keep it supplied with a selection of tools and materials.

There is no real consensus regarding the best type boat to use for diving. Some prefer a light weight, high speed boat, such as a large Boston Whaler, that can reach a distressed vessel in a minimum time. Others prefer a larger boat, capable of providing wider service, but slower. A larger vessel can carry more tools, equipment, and supplies and can, after repairs are completed,

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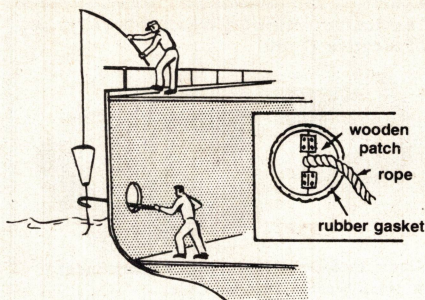
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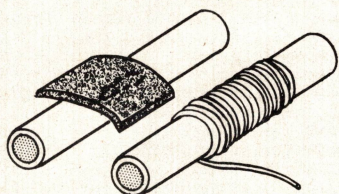
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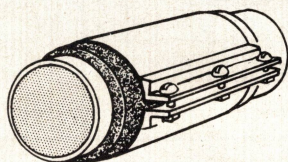




Special plug or folding patch shown in inset may be used to seal a broken port hole.



Packing wrapped with marline or other small line will patch small cracks in pipes.



Larger pipes can be patched with packing held in place by sheet metal collar.

perform the additional service of towing the disabled vessel into a harbor for permanent repairs. A larger boat also provides a more stable work platform, suitable for actual salvage operations.

Regardless of the boat used (often dictated simply by what is available) certain equipment and material must be on board, or readily available, if it is to render meaningful assistance. Basically a diver must be able to stop any hull leaks, drain the vessel, and in general, minimize the result of damage.

Every collision or grounding must be considered serious. However, damage to boats that might normally be considered fatal can be controlled if correct action is taken promptly. To render prompt service the diver should have the following minimum assortment of tools and material on board or immediately available: an assortment of screwdrivers (one of which should be heavy duty), steel scraper, a sharp knife, hand wire brushes, hacksaw with blades, carpenter's crosscut hand saw, cold chisels (1½ and 1¼ inch), wood chisels (same sizes as cold chisels), ball peen hammer, carpenter's brace

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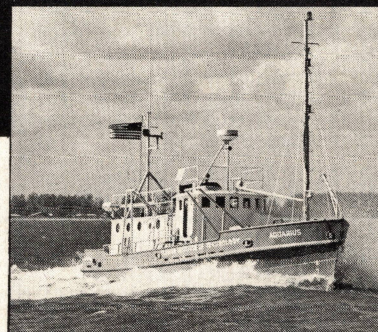
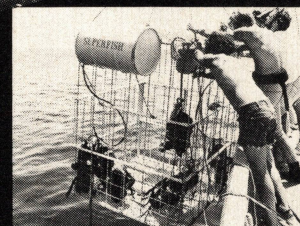
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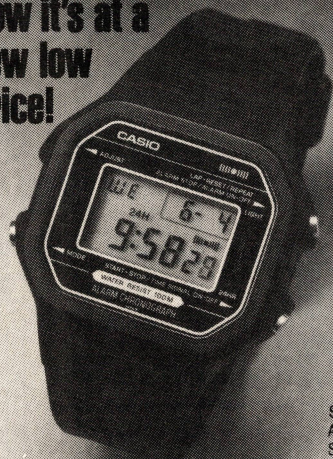
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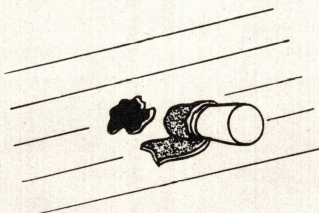
TECHNIFACTS

with assorted size bits, machinist's hand drill and bits, carpenter's claw hammer, putty knife, medium size vise-grip pliers, water pump pliers, regular pliers, eight or ten inch side cutter pliers, crowbar, adjustable 12 and 18 inch wrenches, 18 and 24 inch pipe wrenches, assorted open end box wrenches, two coils of manila or synthetic rope (3 inch by 100 feet), a double block and tackle with about 100 feet of falls, oakum or plenty of rags for caulking seams and stopping leaks, cotton seam caulking material, wooden plugs in several sizes to stop leaks in pipes and hull, wood screws of assorted sizes, leather and rubber washers of assorted sizes, sheet rubber (1/4 inch thick, four square feet), sheet lead (1/16 inch thick, four square feet), sheet metal screws, toggle bolts, wooden wedges of various sizes, two watertight flashlights, a one-half inch reamer, fire axe, porthole patches — either hinged or square, C-clamps (8 inch or larger), and a gasoline engine powered 1 1/2 inch pump with suction and discharge hoses.

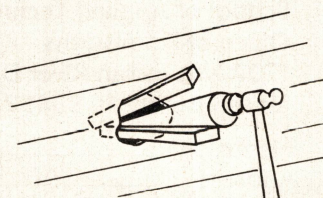
Dive equipment, and diving, are not necessarily required for all small boat repairs but any boat dealing with boats in distress will find many occasions when problems exist underwater and it will be necessary to work with dive equipment. At least two complete scuba rigs, for light work, should be on board the dive boat. Each outfit should have at least three air cylinders, filled at all times.

In the early formative stages of a dive company the heavier and more costly equipment should probably be rented rather than purchased.

An assortment of leak stoppers for wood, metal, and fiberglass hulls should

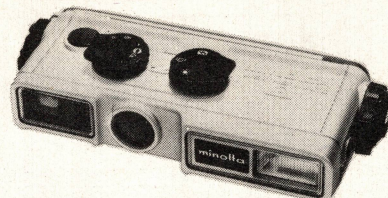


A single plug should be wrapped with a cloth before being driven into a small hole.



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PDS



IUC

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We practice what we teach

The Problem — Qualified People

Early in 1976, at a time when Commercial Diving was in recession, INTERNATIONAL UNDERWATER CONTRACTORS, INC., the world's largest independently owned diving and submersible company, was rapidly expanding. The key to successful expansion in any business is people.

We were unable to find and hire diver/tenders with strong credentials and a professional attitude to fill our entry-level oil rig, construction and submersible support diving positions.

The Solution — PDS

To correct this problem we decided that IUC should have its own Professional Diving School in New York City, staff it with its own diving supervisors and put it under the direct management of IUC Training and Safety Department. To insure that PDS became an integral part of IUC operations, we constructed a modern 8,000 square foot training facility at the companies' World Headquarters on Long Island Sound in New York City. In this unique environment, PDS students became exposed daily to state-of-the-art techniques, diving systems, submersibles and the people who use them.

Results — Qualified Divers

Our solution and its philosophy worked. Today, five years later, we are providing thorough comprehensive training to young men and women seeking to become professionals, at the same time we are providing ourselves with the services of well trained divers, supervisors and other categories of diving personnel in those that we hire to work at IUC.

International Underwater Contractors, Inc., and IUC International, Inc., have hired over 75%* of all graduates to date, and other companies have enthusiastically employed additional graduates. All

commercial diving firms appreciate the value of personnel trained by recognized companies who are in the business of diving as well as the field of diver training. Also, it is current practice at PDS to rotate all instructors to ongoing IUC commercial diving projects, such as offshore oil rigs. This program keeps the instructors current on state-of-the-art industry practices which they can then pass on in the classroom. The bottom line on all this, is that from the period of August '76 to December '80, over 95%* of Professional Diving School graduates were employed worldwide in the diving industry.

Your Employability

We invite you to visit the school or call us, so that we may evaluate you individually and establish your relative employability, based on your previous related experience and successful completion of our program.

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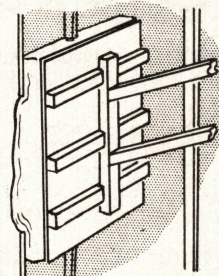


TECHNIFACTS

be available in various sizes. These can be made up in advance and kept in the diver's tool or parts box for ready use. Patches for larger holes should also be available. These can be fabricated by a diver with minimum effort and time.

Holes in a boat hull as a result of a collision are generally quite large and are serious because the boat will fill rapidly. In such a situation the prime consideration is to immediately reduce the amount of water entering the boat by stopping up the hole with anything at hand. A mattress, kapok life jacket, pillow, carpet or a bag or roll of sails are all materials that can be used to cover a damaged area and reduce the flow of water into the hull. When the immediate threat of sinking has been reduced, make plans for a more secure patch so the vessel can be towed to port.

A mattress, whether foam rubber or some other material, when backed up with a table top, door, or chart desk, can



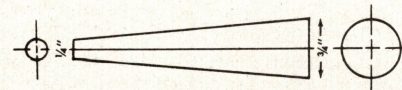
Shoring (braces) are used to hold table top and mattress to stop major leaks.

be held in place by timber shores to stop major leaks. Small holes can be effectively closed off by using a small life ring wrapped with several layers of canvas, held in place with a large bolt and a plank.

An alternate method is to use a kapok filled seat cushion through which a whole has been punched for a tumbler bolt to pass. A strongback must be placed across the damaged area on the side of the hull to hold the patch in place. A strongback is a timber long enough to span a damaged area with each end resting on undamaged hull, while the center holds the patch itself.

Smaller holes may be effectively stopped by using wooden plugs and

(Continued on Page 40)



Soft wood plug for nail or small holes.

For a really complete outfit, you'll want 11 more accessories.



Under water or high and dry, all the gadgets in the bag depend upon the first accessory Film. And Kodak arms you with eleven different 135-size films, each with special capabilities to help you match your mind's eye. To help capture total brilliance, there are six choices for color slide work. For color prints, there are two options, including our fast 400. And there are three different B&W films, including famed Kodak Tri-X film. Try them. Learn them. Use them to complete your outfit.



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PADI PHOTO SEARCH '80

BY AL HORNSBY

The PADI 1980 Underwater Photography Search/Competition winners have been chosen! With thousands of entries from around the world, the second annual competition produced an exciting batch of fine amateur photography.

Designed to provide non-professional underwater photographers with the chance to win prizes and publication opportunities, the Search/Competition will be held for its third successive year, from August 1 to September 30, 1981.

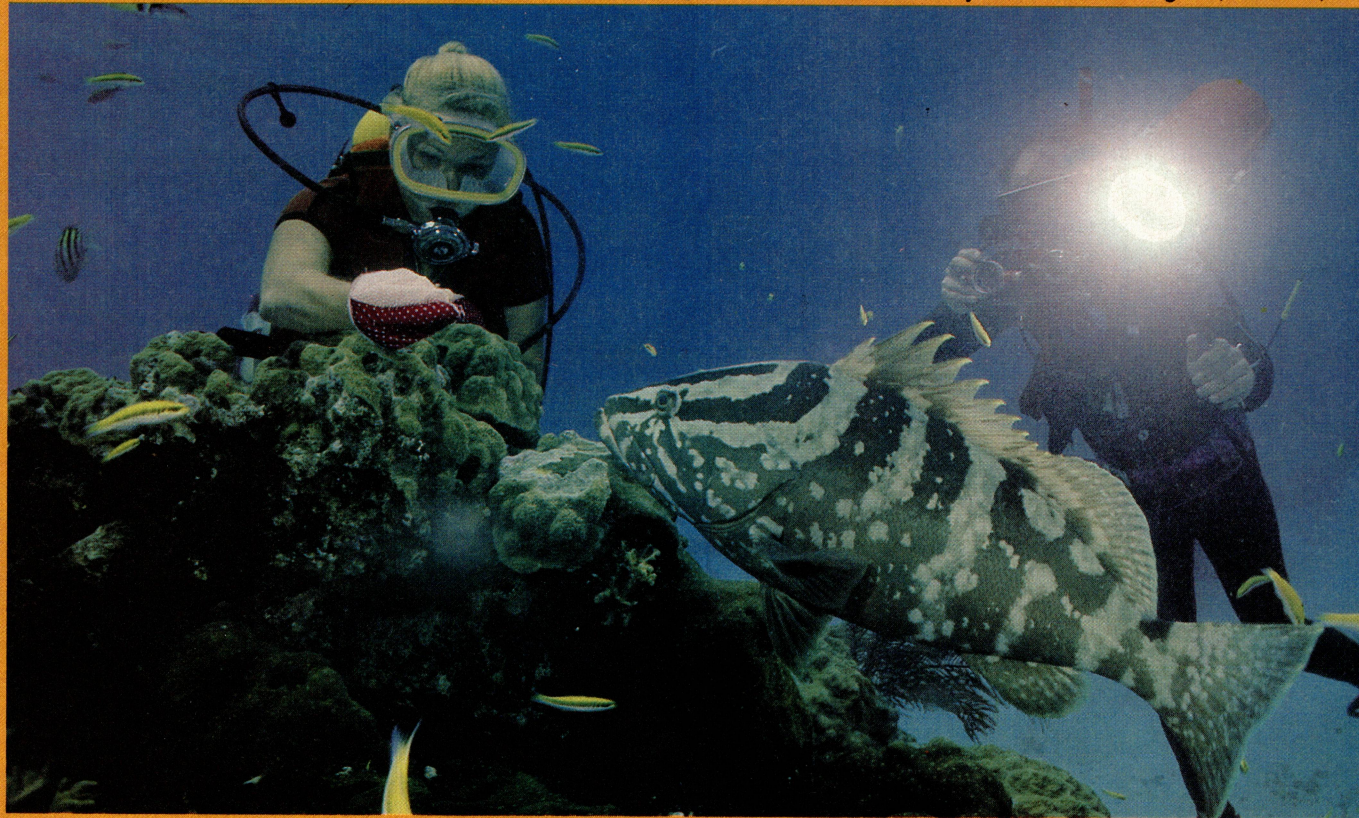
Contestants must first enter a local contest held in one of the nearly 600 sanctioned PADI Training Facilities throughout the globe; the winning photographs are submitted by these facilities to PADI Headquarters for regional judging (ten U.S. regions, one international). Regional winners, in a judging finalized at PADI's annual Fluid Visions photography symposium, compete for the Grand Prize.

Prizes awarded for 1980 included thousands of dollars worth of dive gear

and dive trips, custom prints from Scuba Chrome, publication in The Undersea Journal and SKIN DIVER Magazine, and a deluxe, one-week dive vacation to San Salvador Island, in the Bahamas.

1981's prize list will be even more extensive. For complete information on the next PADI Underwater Photography Search/Competition, and a list of PADI Training Facilities, contact: PADI Underwater Photography Search/Competition 1981, 2064 N. Bush Street, Santa Ana, CA 92706. >

Grand Prize Title: Where the Action Is/Photographer: Jack Straubinger, Affton, MO/Submitted by: Inner World Diving Ctr., St. Louis, MO



Photograph Title: Feather Dusters/Photographer: Carlene Byrnes, High Point, NC/Submitted by Scuba Shack, Inc., Greensboro, NC

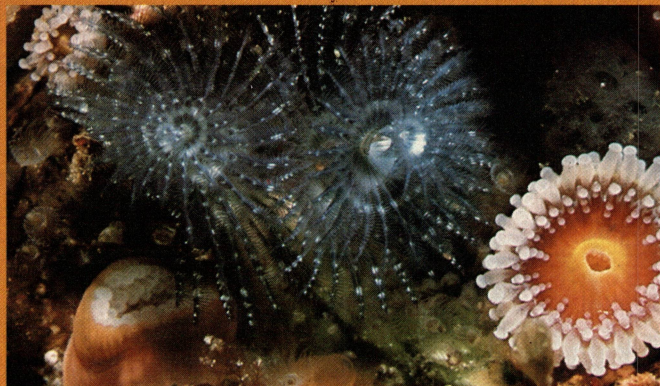


Photograph Title: Queen Angel/Photographer: Eric Wayne, Stamford, CT/Submitted by: Orbit Marine Dive Center, Bridgeport, CT





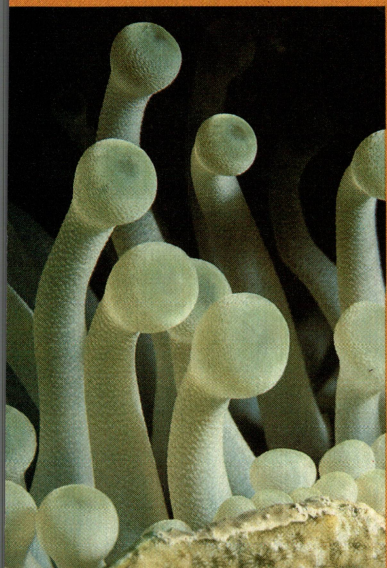
Photograph Title: Hermit Crab/Photographer: William Beel, Clearwater, FL/Submitted by: Scuba Nautics, St. Petersburg, FL



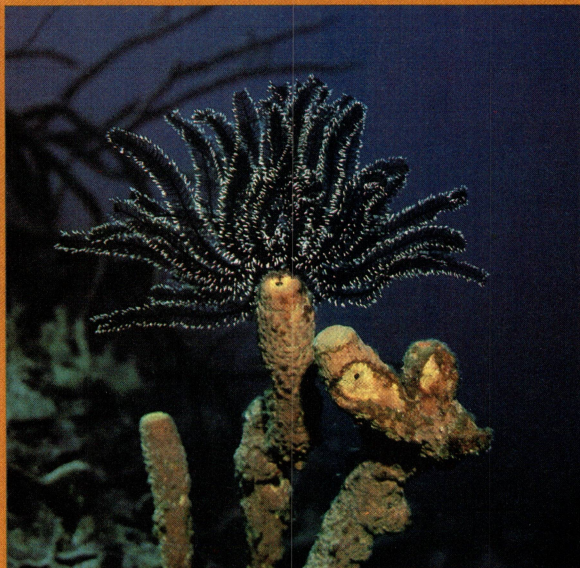
Christmas Gifts/Photographer: Frank Evica, Oak Creek, WI/Submitted by: Bennett Academy of Ski & Scuba, Wauwatosa, WI



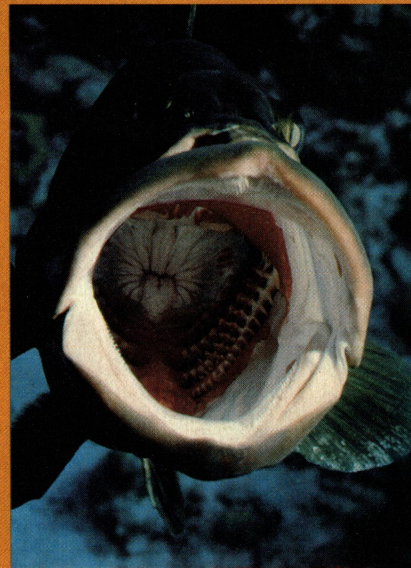
A Coney of a Different Color/Paula Novotny, Indianapolis, IN/Submitted by: Diving Den, Kokomo, IN



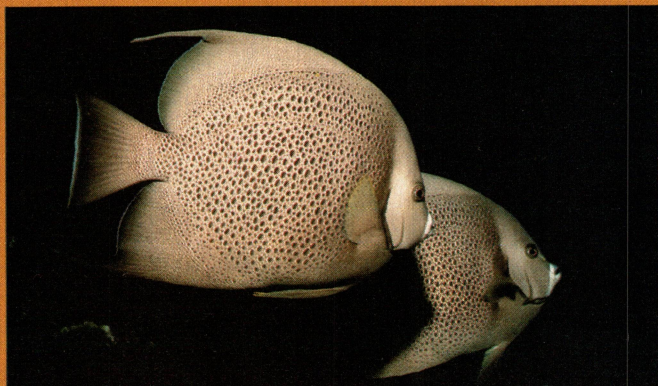
Came From Outer Space/Joel Rosen/quava Ventures, Brooklyn, New York



Flora or Fauna/Photographer: Werner Lissauer, Denver, Colorado/ Submitted by: Odyssey Diving Center, Aurora, CO




Jaws/Paul Janosi, Islington, Ont./ Supreme Divers, Toronto, Ont., Canada



Photograph Title: Gray Angelfish/Photographer: Dr. William Sayre, Austin, Texas/Submitted by: J. Rich Sports, Austin, Texas

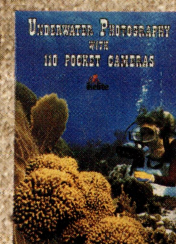


Photograph Title: Shrimp on Anemone/Photographer: Harv Dur- yee, La Canada, CA/Submitted by: Divers West, Pasadena, CA



110 Photography UNDERWATER

photographs by PPC staff
photographer Jim Brown



By Gale Livers

Simplicity of use combined with acceptable photographs at a realistic cost are the reasons for the tremendous above-water success of the 110 pocket camera. Why hasn't the 110 system shared the same success underwater that it has above? The reason seems to be two-fold. Following their introduction in the early 70's, 110 camera models changed every few months. Kodak, for example, offered over 20 models in less than eight years. This constant changing prohibited housing manufacturers from developing accessories which would have improved the quality of underwater photographs produced by these cameras. Any written material on the underwater use of specific cameras or housings was usually out-of-date before it could be published.

In the past couple of years, the 110 market appears to have stabilized. The

latest changes have been improvements in existing features instead of totally redesigned cameras. This has allowed housing manufacturers to do extensive testing, develop accessories and compile written information on how to best use the different 110 cameras underwater. Several of these developments have led to making today's 110 camera as easy to use beneath the surface as above.

The introduction of 110 cameras with built-in electronic flash was a major step in simplifying their use underwater. It eliminated carrying flashcubes, rotating cubes after each shot, and having cubes float away. Electronic flash is also less expensive to use in the long run. Possibly the ultimate in simplification came with the introduction of the Vivitar 830AW and Tele-835AW cameras. Not only do these cameras have built-in

flash, but they also have motor winders which automatically advance the film after each shot. The housings for these cameras require only two controls; one turns the flash on and off, the other releases the shutter. The photographer can now concentrate on the picture and not on the equipment and its operation.

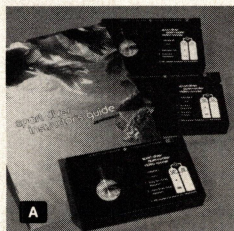
Many 110 cameras will not focus closer than four or five feet. This is too great a camera-to-subject distance for good underwater photographic results. To overcome this problem, Ikelite Underwater Systems developed a close-up accessory to fit its 110 camera housing. When the close-up accessory is used in conjunction with the camera's normal lens, subjects between two and five feet are in focus. This is the ideal distance for sharp, well-lit underwater photographs. The elimination of as much

(Continued on Page 120)

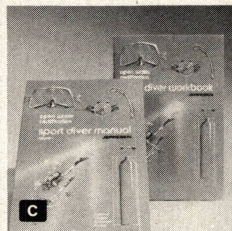
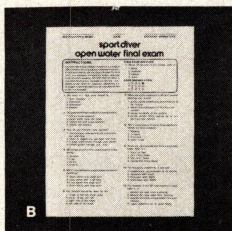
Learning Can Be A Puzzle Without All The Pieces

The Jeppesen Sport Diver Learning System helps you tell it all. The audiovisuals keep your students motivated to learn by giving that important overview. The manual presents all the need-to-know details. The workbook makes the student an active learner. The final exam gives that important learning review.

A. Open Water Video Course — Used to introduce subjects in the Jeppesen Sport Diver Manual. Available in 1/2" Betamax, 1/4" VHS, or 1/4" U-Matic video cassettes. Includes free instructor guide. Contains the same format as the Open Water Slide Course.

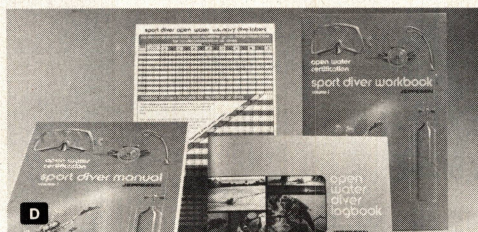


B. Final Exam for Open Water Course Includes 100 multiple choice questions covering the information in the Jeppesen Sport Diver Open Water Manual.



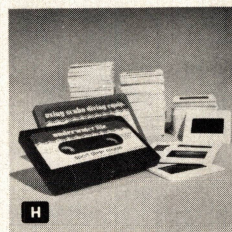
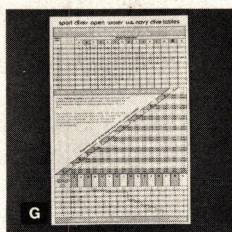
C. Open Water Certification Student Kit Includes the Jeppesen Sport Diver Manual, Workbook, and 4-color diploma. The Manual has 285 pages consisting of 433 illustrations and photographs. Workbook contains 336 questions.

D. Deluxe Open Water Certification Student Kit — Includes the Jeppesen Sport Diver Manual, Workbook, and 4-color diploma. The Manual has 285 pages consisting of 433 illustrations and photographs. Workbook contains 336 questions. Also includes Open Water Diver Logbook and 4-color No-Decompression Dive Table.



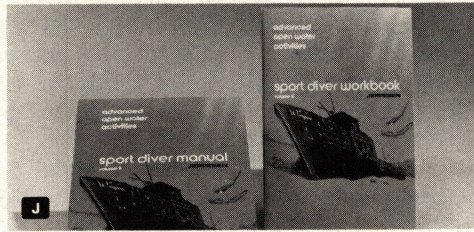
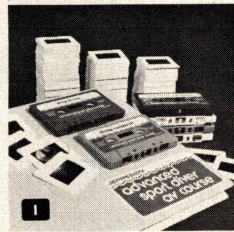
E. Open Water 35mm Slide A/V Course Used to introduce the subjects covered in the Jeppesen Sport Diver Manual. Contains 480 slides and 6 sound cassettes. Includes free instructor guide. Filmed on location on San Salvador Island.

F. Diver Logbook — Has 4-color cover and includes space to log 165 dives, training record, equipment purchased, equipment maintenance, and diving ailments broken down by causes, symptoms, treatment, and prevention.



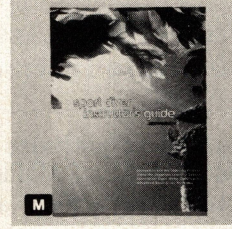
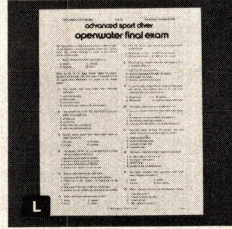
H. Revision Package for Open Water 35mm Slide A/V Course — For instructors and dive stores who already own the Jeppesen Sport Diver Open Water 35mm Slide A/V Course. This package contains three 80-frame slide sets and two sound cassettes. Updates courses purchased before January 1, 1980.

I. Advanced Open Water 35mm Slide Course — Completely coordinates with the Jeppesen Sport Diver Advanced Manual. Contains 480 slides and 6 sound cassettes. Includes free instructor guide. Filmed on location on Santa Catalina Island.



J. Advanced Open Water Student Kit Includes the Jeppesen Sport Diver Advanced Manual, Workbook, and 4-color diploma. Manual has 240 pages with 270 photographs and illustrations. Workbook has 547 questions.

K. Promotional 35mm Slide A/V Program Use this program to interest non-divers in the sport of diving. Includes 80 slides and one sound cassette.



L. Advanced Open Water Final Exam Contains 100 multiple choice questions covering the information in the Jeppesen Sport Diver Advanced Manual.

M. Jeppesen Sport Diver Instructor's Guide — A complete guide showing how to integrate the Jeppesen Learning System into your current curriculum. Includes how and why humans learn, underwater instructor responsibilities, and the options available to teach the Jeppesen Learning System. Instructor Directed Activities are provided that can be used in the classroom, pool, and open water sessions.

Jeppesen materials are endorsed and distributed by ACUC, NAUI, PADI, SSI, & YMCA. Instructors and Dive Stores wishing to locate your closest distributor or to order direct, call toll free 1-800-525-7379.

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JUNE WEEKENDS
GAINESVILLE, FL
JUNE 14-21
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JUNE 20-27
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JULY 11-18
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JULY 18-25
MARQUETTE, MI
JULY 25-AUGUST 1
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AUGUST WEEKENDS
CRETE, GREECE
AUGUST 2-9
GOTEBORG, SWEDEN
AUGUST 8-15
SIDNEY, B.C., CANADA
AUGUST 22-29
HOLLYWOOD, FL
AUGUST 14-23
GUAM
AUGUST 15-22
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AUGUST 15-22
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Put Some PuNCh In Your Picture Show

We were watching Jack McKenney and Chuck Nicklin zap shark after shark during the shark tagging match, when Cathy announced that tagging sharks was child's play. Jim disagreed, pointing out that Paul Tzimoulis, the contest judge, and an authority on such matters, never left the safety of the shark cage. Muttering something about sharks not being so tough, Cathy re-wound the video cassette, and we retreated to the safety of our chairs to watch McKenney tear after those sharks again.

But Cathy's bold words came back to haunt her. It happened on a Caribbean reef, before an enthusiastic crowd of grunts, sergeant majors and a few ring-wise groupers. She was forced to try her hand at the manly (or womanly) art of self defense — shark punching!

ROUND ONE

At the sound of the bubble, the shark made his move — a close pass at Cathy to test her mettle. Shock and surprise were her first reactions. She hadn't expected this encounter, and her body froze into a semi-fetal position. The shark circled, making several more close passes as he sized up his opponent. So ended round one. Three points to the shark for intimidation, and one point to Cathy for not fainting.

Jim, being the loving husband he is, wrote a reassuring note on her U/W slate. It read, "I thought you said sharks weren't tough. Why don't you swim out there and punch his lights out?"

ROUND TWO

The shark moved in fast. He'd written Cathy off as an easy target and was ready for his meal. But Cathy, angered by both Jim's note and the shark, decided that she wouldn't be bullied. The shark's tender nose ran into Cathy's clenched fist again and again. Overconfidence lost the round for the shark; he retreated to rethink his strategy. Three points to Cathy for counterpunching, and zero points to the shark for being outclassed.

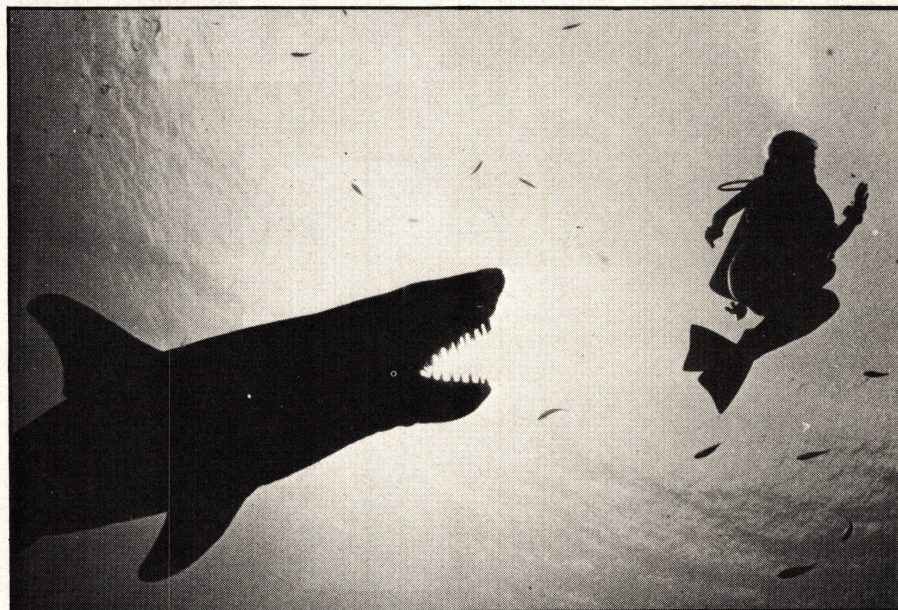
ROUND THREE

The shark moved in cautiously this time. He made a feint to the left, and then to the right, jabbing with his pectoral fins, searching for a weakness in Cathy's defense.

The crowd sensed the tension. The watching grunts hovered motionless. The groupers were moving in slowly,

Sock it to 'em for only \$1.95

Text and Photography by Jim and Cathy Church



Surprised, Cathy freezes in a semi-fetal position as the shark makes a fast pass at her.



The shark expected an easy meal but his nose slammed into Cathy's fist again and again.



The shark moved in cautiously this time — seeking a weakness in Cathy's defense.

hoping to share the victor's spoils. An excited sergeant major lost control and nipped Jim on the ear.

Suddenly, the shark changed tactics and swam straight in for a bite! But Cathy countered cleverly. She turned and presented her tank to the approaching jaws. That ended round three. One point for the shark for effort, and two to Cathy for denting his dentures.

"Try some karate," was Jim's message on the slate. Cathy nodded. It was time for her to take charge of the fight.

The shark was confused. What should have been easy pickings was turning out to be a humiliating defeat. But, being a simple predator of the sea, he went back for more.

ROUND FOUR

He came in low and fast, streaking upward at the last moment to attack, but it did him no good. Cathy caught him in the stomach with a front snap flipper kick and followed with a few karate chops to his dorsal fin. The crowd went wild.

It was no longer a contest. Cathy parried the shark's passes with the graceful skill of a matador. She could stop his charges by simply holding the palm of her hand in front of his sore nose. She could make him retreat with a slap on the tail. The shark was hers. He rolled over, exhausted, and Cathy placed her finned foot on his chest in triumph.

"Sharks aren't so tough," was her concluding comment.

FILMING THE FIGHT

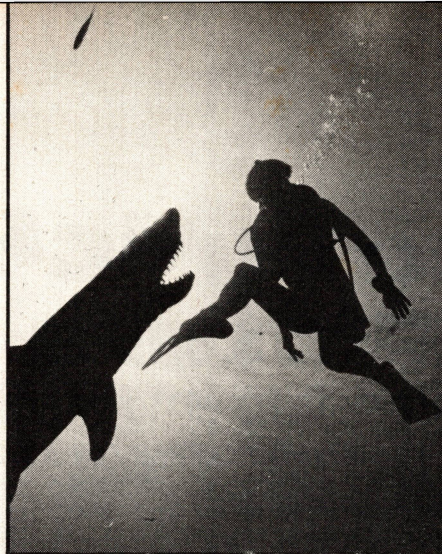
Photographing a shark punching match isn't dangerous. Obviously, we weren't working with a real, live shark. Our shark was made of rubber, was a foot long and cost \$1.95.

The camera equipment, however, cost more than our shark. Jim used a Nikon F with a full-frame 16mm fisheye lens in an Ikelite SLR case, with an Ikelite super-wide dome port. You could, of course, use other wide-angle systems to do the job.

We used upward camera angles to silhouette the shark and gain the depth of field of f22 exposures. Jim would hold the shark by its tail and position it a few inches in front of the dome port. Cathy, several feet away — watching her reflection in the dome port, would position herself relative to the shark and the sun. Wide-angle perspective made the near shark's image appear large on film, and the silhouette made Cathy and the shark appear close together.

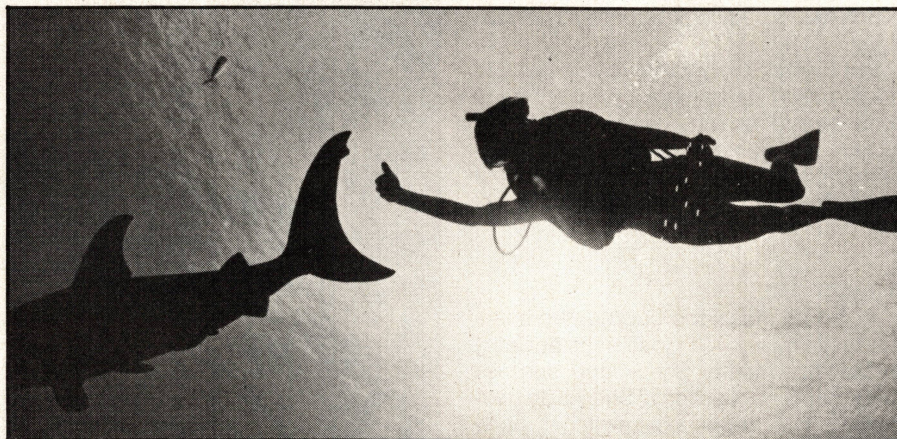
Shots showing the entire shark's body were more difficult. Jim would launch the shark through the scene as if it were a dart. With just enough ballast to make it sink slowly, it would coast past the camera as Jim composed the picture.

What can you do with your shark punching shots? Inserted into a slide show, and flashed on the screen for only a few seconds, a good punching shot is guaranteed to awaken your audience.



Cathy catches the shark with a front flipper kick which changes the course of the battle.

There was no longer a contest. Cathy could stop his charges with an upturned palm.

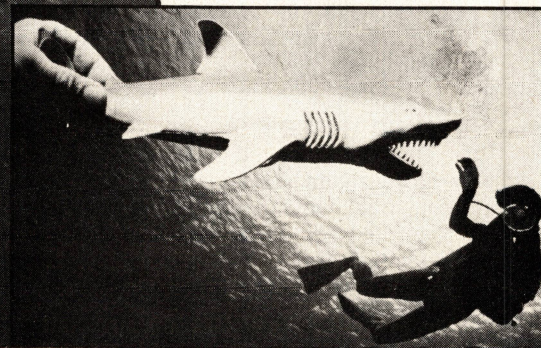


She could make the hapless predator retreat shamefully with a simple slap on his tail.



The fight was over. The shark was hers. The beast rolled over and she placed her foot on his chest in triumph.

Jim held the rubber shark a few inches in front of the wide-angle lens. Cathy was positioned several feet away.



MAGNUM CUM LAUDE.

Here's the regulator that's at the head of its class. The new Magnum balanced piston regulator, from Sherwood. It's the most technologically advanced regulator ever developed, with the most dependable first and second stage designs available today.

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freeze up. A new "floating orifice" balancing system also assures steady pressure between stages.

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If cold water diving is in your blood, we've designed a Magnum regulator especially for you too. The new Magnum Blizzard. It has all the advanced features of our Magnum line, plus a unique heat retention unit,

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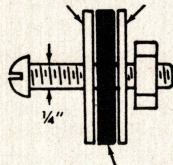


TECHNIFACTS

(Continued from Page 30)

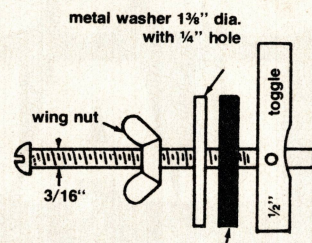
wedges of various sizes. Cracks, leaky seams and small holes can be made watertight by using oakum. Screw holes and similar small openings through a hull may be satisfactorily closed by the

1 1/2" diameter washer
with 5/16" hole

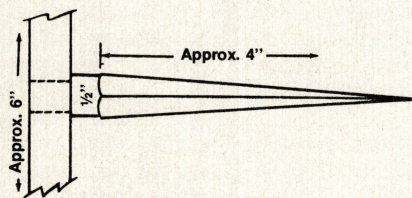


rubber or leather washer
1 1/2" diameter X 3/16" thick with 1/4" hole

use of wood or metal screws and a metal and rubber or leather washer. The metal washer is first placed on the screw, or bolt, then the rubber or leather washer, and finally, the screw placed in the hole and set up until the leather or rubber washer is tightened against the hull. Sometimes the hole must be



leather or rubber washer
1 1/2" X 3/16" thick with 3/16th hole



Half inch tapered square steel tool with T handle for reaming holes in metal or plastic to take half inch toggle bolts.

reamed out so a toggle bolt with washers can be used.

In addition to the emergency repair material package carried in the dive boat, material can usually be found within the damaged boat for making various kinds of repairs. Sheet plywood may be found in bunk bottoms, doors, inside bulkheads, and in smaller pieces, as locker doors and shelving. Heavier wood needed to back up temporary patches may be found in table tops, chart desks, sink tops, flooring and sometimes in the overheads of compartments. Small timbers that may be required to make shoring material can be obtained from the framework of inside compartment bulkheads, bunk sides and other structures of the boat. Care must be taken not to weaken the structure in utilizing material for making temporary repairs.

Small cracks in the hull may be filled with any suitable available material. If seam caulking is not available use clothing torn into strips and forced into cracks or leaky seams with a screwdriver or putty knife.

It is apparent the information in this column naturally leads into light salvage. Next month Technifacts will discuss salvage methods for small boats that have stranded and those that have sunk. >

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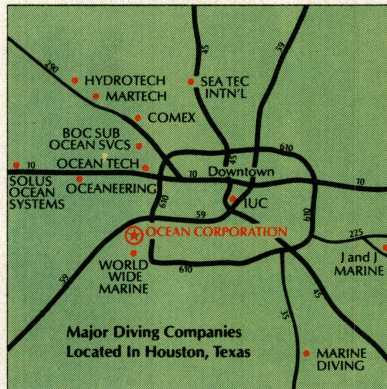
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Why Houston?

BECAUSE

The Ocean Corporation is located in Houston and more commercial divers are hired in Houston than in any other place in the world. Twelve diving companies are located in Houston including three of the four largest in the U.S. Many others are located in the nearby New Orleans area. The demand for divers is so great in Houston that large locally based diving companies like Ocean Systems, Hydrotech Systems, Martech International and Sea Tech International have hired many of our students for part-time work while they were attending school. Over 90% of our recent graduates went to work for these and other local diving companies when they completed our program. Houston is the place where the action is... the commercial diving, offshore construction and oil industry capital of the world.



BECAUSE

The Ocean Corporation is a commercial diving company, not just a school. Our facilities, equipment and training aids are the best, and our diving systems are as up-to-date as possible...

because much of the equipment is used by our diving operations division to perform actual diving contracts in the field. Ocean Corporation has successfully completed many underwater jobs for various industrial clients over the years... including specialized underwater inspections, maintenance and repair work. For example, we did the world's first commercial underwater repair job in a nuclear power plant. And most of our divers have been graduates of our own school.

BECAUSE

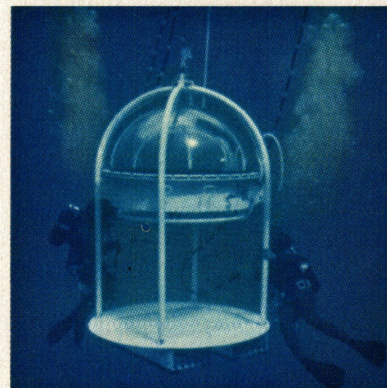
The Ocean Corporation is a convenient and exciting place to go to school. Houston is one of the fastest-growing and most dynamic cities anywhere. It is a city of expansion, energy and youth (the average resident's age is in the mid-20's). Houston offers every conceivable kind of entertainment, from sports events, ultra-modern discos and open-air theater to rough-house local rodeos, chili cook-offs and the new Texas-size



country-western dance clubs. Reasonably priced adult and singles apartments are readily available within walking distance of the school, and fast-food to luxury restaurants are nearby. The semi-tropical climate is wonderful, the sport diving is great and the folks are friendly.

BECAUSE

The Ocean Corporation management and instructor staff have long-term experience in the international offshore oilfield diving business. Retired ex-military divers and sport scuba divers don't run the school... commercial divers do. For example, the President of The Ocean



Corporation, Larry

Cushman, was Vice President and Europe/Africa Area Manager for Ocean Systems, Inc. for three years... with responsibility for all North Sea diving and underwater construction operations. He also worked six years as a manager for Oceaneering International, Inc., another of the world's largest commercial diving contractors. Ocean Corporation managers and instructors know today's diving business... first-hand, from recent experience.



The Ocean Corporation

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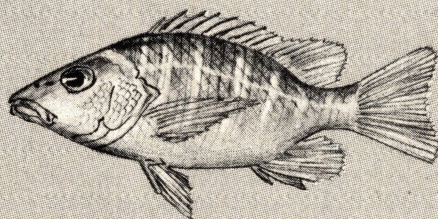


The Schoolmaster

(*Lutjanus apodus*)

The snappers (Lutjanidae) are a large family of fishes, with approximately 250 species found all over the world. They are second in size to the sea bass family (Serranidae), another important group and the largest of them all. Everything considered, there are a lot of snappers and a lot of basses in every ocean on earth, and the diver who wants to determine which is which among the similar looking, medium-sized individuals can watch for these differentiating characteristics: snappers have a sharper, more angular snout than the basses, smaller mouths, forked tails as opposed to more rounded ones, and many of the snappers have yellowish fins. □ Within the snapper family itself some species may have to be separated by complicated technical determinations, such as tooth patterns, but quite often the color patterns alone can provide all the necessary information for identification. The fins of

the schoolmaster are all yellowish, and this is the chief distinguishing characteristic of the fish. Its ground color is grayish and there is usually a series of pale vertical bars over its body, but these disappear with age. Usually there is also a blue streak beneath the eye. The schoolmaster most closely resembles the dog snapper (*L. jocu*) except that the dog snapper has a pale triangular blotch below the eye. □ *Lutjanus* comes from *lutianus*, a derivative of the Malayan name for fishes, and some of the references on the subject (Ray, Beebe) refer to the Lutjanidae as Lutianidae. In the Caribbean, snappers are commonly referred to as pargos, especially among the Spanish speaking people. □ The schoolmaster is the most common of the Caribbean snappers. It has been recorded from a variety of habitats — from coral reefs to tidepools. Ichthyologist John Randall reports that he has most often



seen the schoolmaster among stands of elkhorn coral, while Bohlke and Chaplin state that most of their specimens came from tidal creeks lined with mangroves. The fish seems to live in every sort of environment within its range. It is described as littoral, that is, it will frequent near-shore areas, which can include swamps or mangroves — the young using such areas as nursery grounds. The adult schoolmaster grows to almost two feet and a weight of eight pounds, making it one of the medium-sized snappers. The larger ones (*L. jocu*, *L. griseus*, *L. analis*) grow to three feet and a weight of 15-20 pounds. □ Like most snappers, the school-

master is a good food fish, though it is not nearly quite as important as the red snapper, for which there is a large commercial market. Some of the larger snappers have been known to cause ciguatera poisoning, depending upon time and circumstances in which the fishes were taken. □ Most snappers are not easily approached by the diver and similarly, the schoolmaster is shy by day, spreading out from its protective huddle at night to feed. Snappers are described as voracious carnivores, feeding primarily on fishes and shrimps. Randall determined that the larger individuals, having more well developed canine teeth, feed more on fishes while the smaller ones feed more on crustaceans such as crabs, shrimps and stomatopods. □ The schoolmaster is found on both sides of the Atlantic, and in the West Atlantic it has been recorded from Massachusetts (where there are a few young stragglers) and Bermuda to Brazil, including the Gulf of Mexico. The schoolmaster is very common in the Bahamas where, true to its name, it can be seen during the day in small schools gathered under a ledge or taking refuge inside a hole in the reef. ✎

Photo By George Marler - Text By Hillary Hauser

The photo was taken in 30 feet of water on the wreck of the *Rhone*, British Virgin Islands. Marler used a Nikonos with a Seacor 21mm lens, Subsea Mark 150 strobe. Shot with Kodachrome 64 at f11, three feet from subject.



NATIONAL ASSOCIATION OF UNDERWATER INSTRUCTORS

An up to date look at one of diving's pioneer training associations.

TEXT AND PHOTOGRAPHY BY ERIC HANAUER

Twenty-one years ago the National Association of Underwater Instructors certified its first 40 instructors in Houston, Texas. Since that time more than 7000 instructors have been certified by NAUI and they in turn have certified nearly one million divers.

Diving has changed considerably in the past 21 years: So also has NAUI. But, the agency has remained at the cutting edge of dive instruction without compromising its standards.

NAUI was the first national organization of individual instructors. Although a national program existed prior to NAUI's beginnings, it certified people only to teach in YMCA's. Los Angeles County had begun its pioneer local program in 1955, but by 1958 nothing was happening on a national level. A Southern California instructor, Neil Hess, started a column in SKIN DIVER Magazine called The Instructor's Corner. Its purpose was to allow people teaching in the field to submit their training programs for review. Hess and a group of California divers checked the programs for content and adequacy, made suggestions, and produced a list of instructors whose courses had been approved. Those instructors were known as the National Diving Patrol.

However, a name on a list wasn't really sufficient to establish a person's credentials. The only way to determine the capability of an instructor was to watch him dive, watch him teach and test his knowledge and skill. A certification course was needed. The first one was held in conjunction with the annual meeting of the Underwater Society of America. It was a Hell Week procedure, with the candidates subjected to seven days of classes, evaluation, written and practical testing, and critique of teaching methods. The successful candidates became certified under the organization's new name: The National Association of Underwater Instructors — NAUI became the official training arm of the Underwater Society of America.

The first full time general manager, Art Ulrich, was hired in 1968. Art lived in Colton at the time and headquarters was established there for his convenience. It remains there to this day despite efforts to move it nearer the water. Projects director, Ted Boehler, explains, "We do most of our business by mail and on the phone. Instructors don't usually walk in off the street . . ."

Instructor pride and involvement is NAUI's greatest strength. In 1980 that attitude was put to the test. When the organization announced that it had lost \$115,000 during fiscal 1979, rumors of its imminent demise ran rampant. Board president, John Englander, revealed the situation in an open letter to the membership. Executive director, Ken Brock, resigned and a nationwide search was begun for a qualified replacement. In the meantime, Englander assumed the task on a voluntary basis, commuting every two weeks from his home in the Bahamas.

Englander is one of NAUI's young veterans. Just 30 years old, he has been an instructor since 1968 and owns the Underwater Explorers Society in Freeport, Bahamas, one of the Caribbean's largest and most successful dive operations. Until Englander took over, UNEXSO had struggled through two owners and lost a fortune. Beginning as a guide, he worked his way up to management, then bought the company and turned it around. This example caused NAUI to turn to him for leadership.

Englander states, "We raised dues, repriced our services, and cut out some frivolous things on which we were spending money." Offers of help and cooperation came from every segment of the dive industry. But, the most encouraging response came from the membership as NAUI instructors increased certifications nine percent in a recessionary year during which the industry as a whole showed no growth. Within eight months the situation turned completely around and the organization had produced an increase in the work-

ing capital of \$86,487 over last year.

Englander: "The financial recovery came three times faster than I thought it would. Our greatest strengths are our democratic base, the depth of pride in the membership and the voluntary time members give. I donated 120 days of time last year. We do it because it's in our best interests. NAUI is us."

Significant changes were made in the relationship between the board of directors and headquarters staff. In the past, the board had been directly involved in day-to-day operational decisions. It met only once a year, consequently many projects were delayed and they were unable to cope with changes fast enough in a rapidly evolving industry. In addition, the headquarters staff was accountable to eight bosses, many with conflicting opinions. NAUI had outgrown the old system.

Under the current system, headquarters staff has the primary responsibility for management decisions and the production of programs and support materials. The board of directors sets goals and oversees the financial status of the organization. Marshall McNott, executive director, states, "The board has given us the freedom to operate within the framework of what NAUI can and should do."

McNott wasn't even a diver when he was selected for the position in August, 1980, after a five month search. But the board of directors wasn't looking for a diver, it was looking for a proven administrator with a strong business background and experience in the management of nonprofit organizations. Marshall had those qualifications. He began his basic scuba course six months later.

McNott's road to dive management began in show business. He played the trumpet with the bands of Jimmy Dorsey, Les Elgart and Perez Prado. But after a few years he tired of life on the road, got married and spent the next eight years working for General Motors Acceptance Corporation. After rising to middle man-

agement ranks, he assumed the presidency of the Asher Student Foundation, a nonprofit organization which provided living units for university students. Under McNott's nine year leadership, the organization expanded from one to ten campuses in four states. This resulted in a move to California, consulting work and finally selection as NAUI's executive director.

Marshall brings a fresh, new perspective to dive management. As a non-diver with no preconceived ideas, he can help the industry look at itself.

Manufacturers and dive organizations are concerned with the industry's lack of growth in the past few years. A recent Gallup Poll showed diving to be among the lowest sports in number of participants, yet high on the list of things people would like to do. According to McNott, "The industry has the potential to take off." However, diving has erected barriers toward new people entering the sport. A person can learn to ski in a day or two, but becoming a certified diver is a longer and harder process.

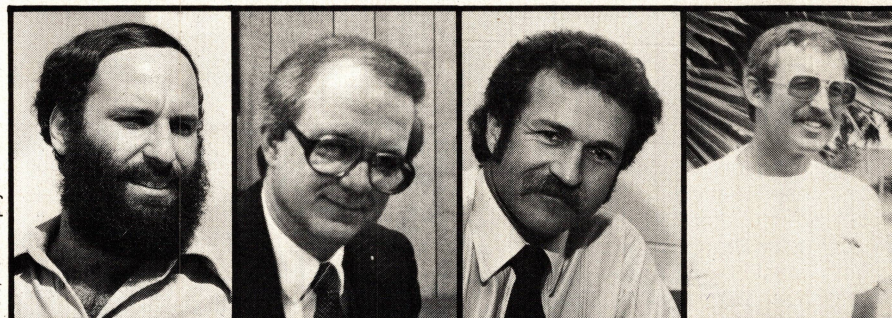
NAUI is reevaluating that process and trying to separate necessary dive skills, like mask clearing, from those that are "nice to know," such as gas law theory. The result will be an accelerated course, similar to a resort course, which will lead to an entry level certification. A diver with this card will be able to dive in controlled conditions under the supervision of qualified personnel. After this introductory level training and experience, similar in concept to the beginner's slope in skiing, many more persons will be motivated to go on to the next step: basic scuba certification.

The Diving Equipment Manufacturers' Association (DEMA) has awarded grants to NAUI and PADI to develop the new introductory scuba courses. Although each agency will develop its course independently, cooperation in such a venture is essential. If either one were to produce the course unilaterally, the anguished cries of compromised standards would ring out all over the industry. In the past, inter-agency cooperation was possible only when government legislation threatened to restrict diving. Now, however, most segments of the industry realize they must work together for the growth of the sport. Growth benefits every diver by stimulating research and development and by bringing down the cost of diving.

Although McNott favors inter-agency cooperation, he raises a point of caution. "The ultimate in cooperation is to have only one agency. That doesn't work, as demonstrated in several countries. The ideal is to have agencies work



The NAUI Headquarters staff, pictured above, has the primary responsibility for management decisions and the production of programs and support materials.



John Englander,
Board President

Marshall McNott,
Executive Director

Ted Boehler,
Projects Director

Jim Hicks,
Training Director

competitively toward the same goal."

As executive director, McNott administers the organizational and financial aspects of NAUI. Courses, support materials, and instruction are the responsibility of training director, Jim Hicks, and projects director, Ted Boehler. Ted began his career as a teenage instructor at the local YMCA in 1962. Ted's background in scuba includes managing a dive shop, teaching underwater photography, military and scientific diving and private instruction. He is the dive officer at Long Beach State University, where he received a degree in marine biology.

Boehler's first book, *The Divemaster Manual*, grew out of his own frustration at the lack of materials on the subject. It will go into its third revised edition soon, and has sold tens of thousands of copies. Ted has also written a text on night diving and co-authored one on subtidal marine biology.

Boehler feels his most significant publication was his first for NAUI, the *Pro Manual*. Based on his personal background and edited by experts around the country, the book is a step-by-step guide and reference manual for instructors. He calls it, "... a turning point for NAUI in terms of support materials ..."

Jim Hicks, NAUI's new training director was hired in March of this year. Certified in 1958, he graduated from both Oc-

cidental College and the University of Southern California. He holds a master's degree from USC in physical education, a subject he taught for 14 years at Sonora High School in Fullerton, CA. He left the school to establish and operate NAUI's first Professional Development Center (PDC) in Cypress, CA. This facility offers a longer, more comprehensive course of study including store management, equipment repair and business training. It is designed for those who want to make a career out of diving.

Hicks' responsibilities with NAUI include all facets of training, a subject in which he is well versed. He has been teaching vocational diving since 1974.

NAUI has recently introduced two new courses. Openwater Diver began late last year in response to demand from the membership for a course beyond basic certification that emphasizes additional open water training. It requires two dives beyond the three needed for basic scuba, with additional training in buoyancy control, navigation, air consumption calculation and deeper diving. It offers the student the added confidence which comes with more dive experience, as well as the more prestigious designation of Openwater Diver. In addition, previously certified divers can come back for a brief refresher/update course and earn the new certification.

The openwater card is a departure



NAUI headquarters building in Colton, CA.

from dull, ordinary cards, featuring a colorful silhouette of a diver swimming into a sunburst. For the first time, NAUI is offering the option of laminating the student's ID photo to the back of the card.

The second new course is Diver Rescue. Historically, NAUI has always been a leader in diver rescue, having integrated the material into its normal courses. In response to input from the field, the board of directors instructed headquarters staff to create a separate diver rescue course. It was developed by a committee headed by Dr. Ron Bangasser, an instructor/MD who doubles as NAUI's Pacific Branch Manager. Lifesaving and rescue techniques were evaluated with regard to their applicability for dive situations. This course will take the place of Red Cross Advanced Lifesaving, which has limited bearing on scuba, as a prerequisite for instructors' courses.

There are three ways to become a NAUI instructor. An instructor certified by another agency may take a weekend crossover course that consists primarily of rigorous testing on knowledge, diving and instructional skills.

Or, an experienced diver who has attained the rank of assistant instructor and has taught under supervision is qualified to enter a one week Instructor Training Course. These comprehensive courses are offered throughout the world. ITC's are led by a qualified course director and staffed by experienced NAUI volunteer instructors. It is an intensive period of learning and evaluation. Graduates are well prepared to carry on an honored tradition.

The third method is through a NAUI Professional Development Center (PDC). An independent operation sanctioned by NAUI, it provides the alternative for those who intend to go into diving as a full time profession. The first center was founded by Jim Hicks and operated by him for the past three years. Jed Livingston now manages this facility. A new PDC just opened in Marathon, Florida under the direction of Bob Raymond. New centers will open in other parts of the country as the need arises and quality control can be assured.

Twelve years ago, John Reseck of Santa Ana College conceived the idea of a weekend meeting of scuba instructors for the purpose of sharing information. He called it the International Conference

on Underwater Education and held the first two at his home base, sponsored by NAUI. The conference acronym was shortened to ICUE, then IQ. It became the largest dive conference held anywhere in the world, developing into a trade show, film festival, technical and scientific workshop, and general gathering of the clan. Subsequent IQ's were held in Miami, San Diego, Toronto, and Anaheim.

This year, IQ 12 will be held in Toronto, Canada, November 12 through 14. The DEMA Show has become the major trade show for the industry, and the question has been raised whether a need for IQ still exists. A one year hiatus was declared during 1980 as NAUI examined the question. A series of mini-IQ's were held in various branches around the country and were very successful. In the future, the conference might alternate on a bi-annual basis with local meetings. Among the possibilities discussed are



NAUI brochures and Diver Rescue slide series.

holding it in a dive resort area rather than a convention city and turning the affair into an opportunity for instructors to dive together as well as to talk together.

The association's periodical, NAUI News, is undergoing some significant changes as well. It has become a bi-monthly publication, with newsletter updates in the months it does not appear. The general facelift includes a new graphic layout and perhaps even a new name, to be suggested by the membership. The revised publication will provide an expanded format for member input, with special columns for instructor comments, teaching hints or gripes. The international aspect will receive more emphasis, with sections for NAUI Canada, NAUI Japan, and news from other countries that host NAUI activities.

The NAUI Diving Association is being upgraded and revitalized. It is open to all certified divers. Membership will entitle the diver to receive NAUI mailings and periodicals, discounts on publications and involvement in activities of the organization. NDA is qualified to apply for grant money and plans to become active in that area.

Pro Facility II is NAUI's liaison program with dive shops. Under the direction of Harry Averill, the program provides discounts to member shops on

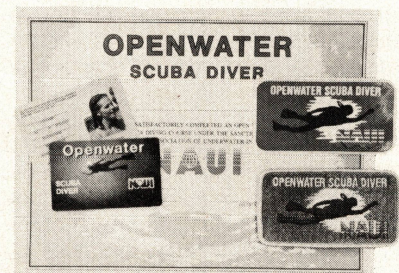
books and services, directories of facilities and instructors and a strong insurance program. Boehler says, "NAUI originated support to the dive shops, we just didn't have a program with a special name before. We always referred students and instructors to dive stores, offered industry support, and volume discounts."

In some areas of diving, a sensitivity has developed toward the independent instructor, associated with the stigma of undercutting the dive shops and selling gear from the trunk of his car. McNott prefers the term "individual instructor." He points out that the vast majority of NAUI instructors teach out of shops, resorts or universities. Over 90 percent of NAUI students surveyed were referred by their instructors to dive stores to buy their equipment. "The old trunk-of-the-car routine is an anachronism," he says. "It's not applicable now and hasn't been for many years."

Two of the dive industry's most prestigious awards are administered by NAUI. The Leonard Greenstone Safety Award is given to the person who has made a significant contribution to diving safety. It consists of a perpetual jade trophy, the Spirit of Poseidon, and a cash award of \$500. Past recipients have been Dr. Charles Brown, Dr. Glen Egstrom, Dr. Lee Somers, Dr. Merrill Spencer and Bill High. In the past, several varied and esoteric fund raising schemes were used to endow the award, but Scubapro has recently pledged a donation of \$200 a year to maintain it.

The Debbie Brennan Memorial Scholarship is given each year to a deserving student of the Commercial Diving Center. Debbie, a NAUI instructor, was the first woman to graduate from CDC and was extremely active in NAUI affairs until her untimely death from illness.

NAUI's leadership is proud of its traditions and history, but realizes an association is judged on what it does for its members today. The new programs re-



Open Water diploma, patches and picture ID.
photo courtesy of NAUI

flect the changes in our society and in the dive industry. McNott predicts exciting times ahead. His goal for 1981 is a 20 percent increase in instructors and in diver certifications. He stated, "NAUI is not only alive and well, but will enjoy an even more significant place in diving during the 80's." 🐠

Beach Dive Bends

By John Bohannon

It is extremely embarrassing to relate this story of poor judgement, but in the hope that someone else may benefit from my errors, I'm going to swallow my pride and do so.

The background is as important as the dive itself, so I'll start there. I do a lot of beach diving off Orange County, California, and while the surf may be challenging, the depth rarely exceeds 45 feet. One Tuesday I proceeded to my local clam bed to secure my weekly allotment of pismos, but had to pass because the surf was much too severe for diving. Upon returning home, I threw my gear bag (still packed), tanks and buckets in the garage. I had a dive planned for Thursday afternoon and figured I'd repack and check my gear on Wednesday evening. Now, you have to understand I don't take anything on a clam dive that isn't absolutely necessary, because the surf steals a great deal of gear. Clam dives are normally in less than 20 feet of water, with very poor visibility. Therefore: no watch, no Bottom Timer, no depth gauge. Compass is required. In my case, I use an old depth gauge-compass combination that gives good direction but lousy depth readings.

On Wednesday evening, I didn't get time to repack my gear bag — had some shopping to do; grab a quick meal; off to the dive club meeting. I was going to go over the gear and plan the Thursday dive when I got home from the meeting. Well, after the meeting a few of us went out to have a couple of beers. Somewhere around 1:00 am one of my compatriots mentioned that I wasn't going to be in very good shape to dive in the morning. I laughed and said: 1.) I wasn't diving until noon; 2.) I'd done it before; 3.) It was only a beach dive anyway.

On Thursday, I awoke late and hung-over, skipped breakfast, threw my gear — still packed from Tuesday night — into my car and sped to work. At 11 am, five of us headed for Redondo Beach in Los Angeles County. The drop-off at this beach is steep and deep (over 100 feet in spots), and I knew this because I'd dived here before. It's not Orange County Beach diving! It was an easy entry, and I proceeded down to some old pier pilings I knew to be in about 55 feet of water. I checked my unreliable



depth gauge and accurate compass combination, and was surprised to see it reading 53 feet. Of course, because I didn't have much faith in the depth gauge, I never bothered to check my watch — after all, what good is an accurate bottom time if you don't know how deep you've been? Remember, my good depth gauge was still at home, right next to my Bottom Timer. Well, I soon encountered a large crab, and by the time I secured it, I had slipped down to 65 feet according to my not-so-great depth gauge. I spent the rest of the dive around 55-60 feet, making a conscious effort to conserve my air because I had used a good deal taking several crabs.

Again, I must throw in some background. I don't normally use much air; I dive a single 80 cubic foot, aluminum tank and regularly surface with 500-600 psi of air left after spending 55 minutes at 50-60 feet. So, when I'm trying to stretch my air — well, that's all irrelevant because I didn't time the dive anyway. I decided to leave myself a little cushion because I wasn't familiar with the surf on this beach. I surfaced with 700 psi and swam in. It was an easy exit, I packed


my gear, went back to work, showered, changed and went to the office. Shortly thereafter (about an hour after the dive), I experienced a sharp pain in my left groin, upper leg, and knee. After I sat for a few minutes the pain subsided, and even though I suspected some sort of a diving-gas related problem, I elected to dismiss it, and went home. Shortly after my arrival at home, I experienced the pain once more; sitting again relieved the pain. When it happened again, I contacted the Los Angeles County/USC Medical Alert Center. They instructed me to come in for an examination, which I did. By 8:00 pm I was in the recompression chamber on Catalina Island.

So much for the story — now for a little Monday morning quarterbacking, or how I got bent:

- 1.) Failed to plan the dive.
- 2.) Failed to pack the correct dive gear.
- 3.) Heavy drinking the night before.
- 4.) Not enough sleep.
- 5.) Complacency and overconfidence: It's just another beach dive.
- 6.) Strong possibility that I exceeded the no-decompression limits.

You can probably pick out a few more causes from the story, but I have chastized myself enough. Now a comment on the preventive actions I'm taking.

- 1.) I'm going back to being religious about planning my dives.
- 2.) If I drink, I won't dive until my system has recovered.
- 3.) If my dive plan indicates that I'll be close to the no-decompression limits, and I'm not in tip-top shape, I'll put in an extra safety margin.
- 4.) Anytime I'm going to be close to the no-decompression limits, I'll stop for three to five minutes at 10 feet on the way up.
- 5.) I have purchased a console to hold my good depth gauge, compass, pressure gauge, and Bottom Timer. The no-decompression limits will be painted on the back for reference in case the dive plan must be abandoned.
- 6.) I think the scare I received cured my overconfidence.

I was very lucky. I've completely recovered thanks to a dedicated professional medical team, and I hope my experience will prevent someone else from getting injured or killed. 



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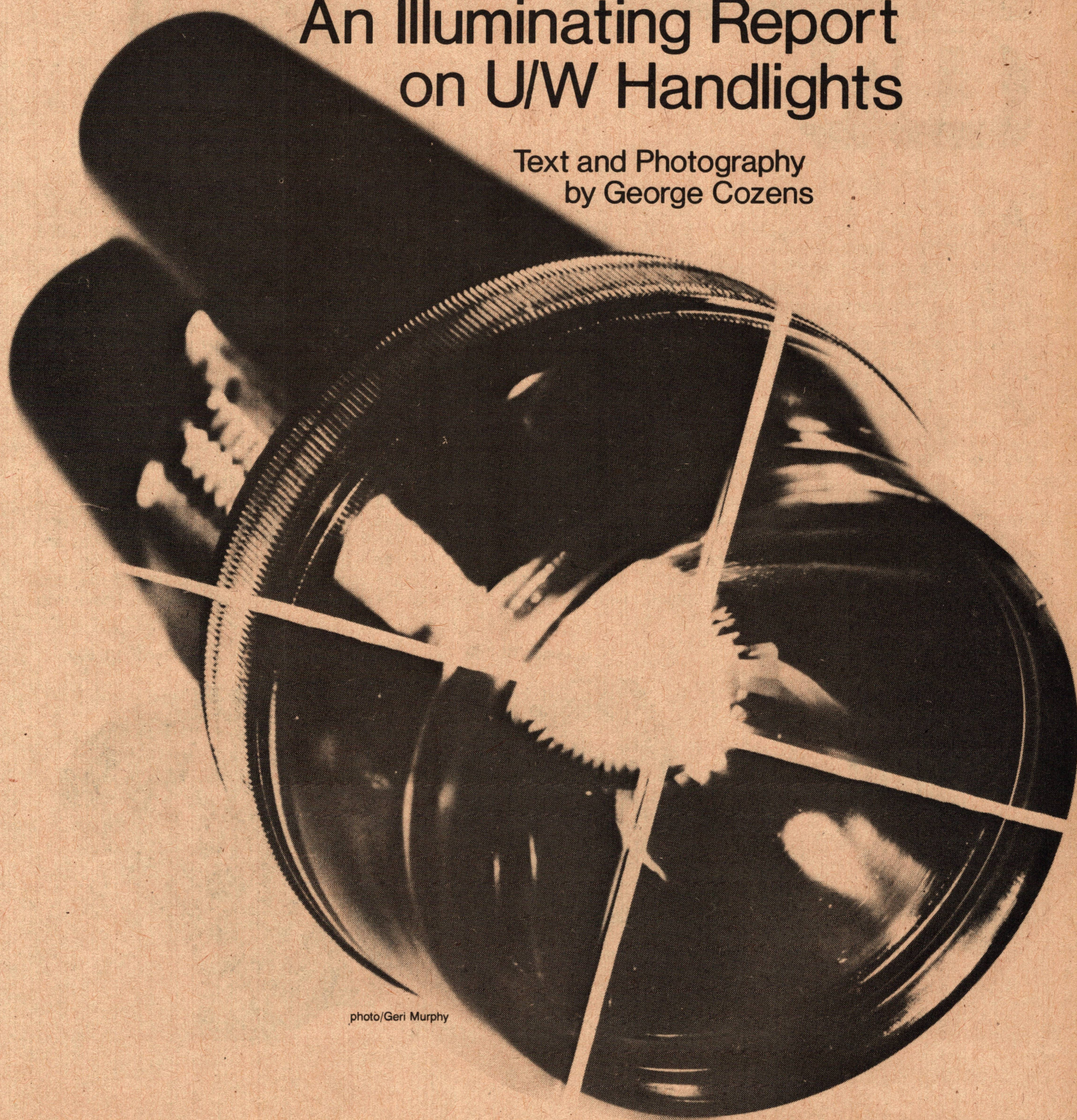
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SHINE ON

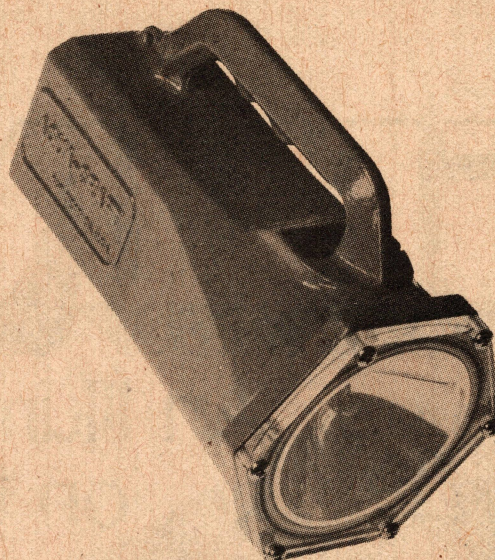
An Illuminating Report on U/W Handlights

Text and Photography
by George Cozens



photo/Geri Murphy

SHINE ON



Aqua-Craft, Aqua Lite

After rushing to get suited up (it seems I'm usually late), it was time to relax a little. Well, almost. At last, we were all aboard the inflatable dinghy — eight divers, two crewmen, and a pile of assorted dive and photographic equipment. As the dinghy pulled away, some of us reshuffled bodies and equipment in a futile attempt to get more comfortable. Trying to ignore the strobe arm poking me in the back and the heavy tank resting on one foot, my thoughts wandered from the minor discomforts of this ride to the beautiful sky (blue-black in color, punctured by countless stars and a bright, ascending moon), to the impending dive, which we hoped would be as impressive as the daylight dives. Undulating over the water's surface, we gradually left our vacation residence, the very comfortable, 96 foot dive ves-

sel, *Sun Boat*, anchored peacefully in the distance. We were in Na'ama Bay, situated on the Red Sea, near the bottom of the Sinai Peninsula, and heading for a spot called Near Garden (so named because it's closer than a site called Far Garden . . . if that makes any sense!).

Within a short time we reached the spot and divers and gear began rolling overboard. After quick preparations at the surface, my buddy and I started descending, while trying to make out details on the bottom, only dimly illuminated by the moonlight. Frankly, I was a little disappointed — the bottom looked so drab and uninteresting. Upon turning on our dive lights, however, the scene changed immediately. Near Garden came alive instantly: Numerous small, tropical fish darted about frantically when illuminated, finally seeking shelter in the

jagged, hard corals; brilliantly colored soft corals, in reds, yellows and blues, swayed slowly with the surge; a few lionfish, annoyed by our approach, slowly turned their tails to us, displaying their beautiful but dreaded plumage; crinoids, in various colors, attached their feet to the reef, and unfolded their feather-like arms in search of food passing their way; and communities of urchins, extending their long thin spines, beckoned us to come closer. A little more searching with our lights, and we discovered more interesting creatures: parrotfish fast asleep in their own cocoon-like pajamas ("sacked-out" for the night); a blue-spotted stingray looking for a sandy bed; a catfish eel with bright, shiny eyes and a whiskered snout, out searching for a nighttime snack; and one of the most beautiful underwater animals I have ever

Cressi-Sub, Mini-Flash

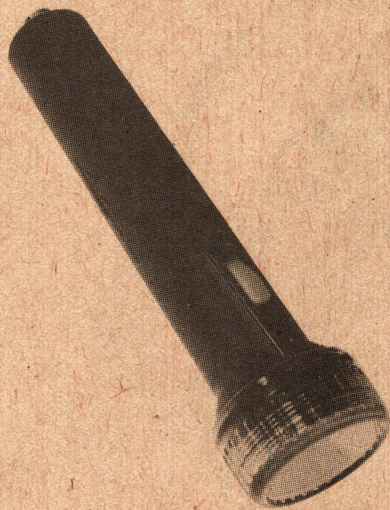


Dacor, UL 700

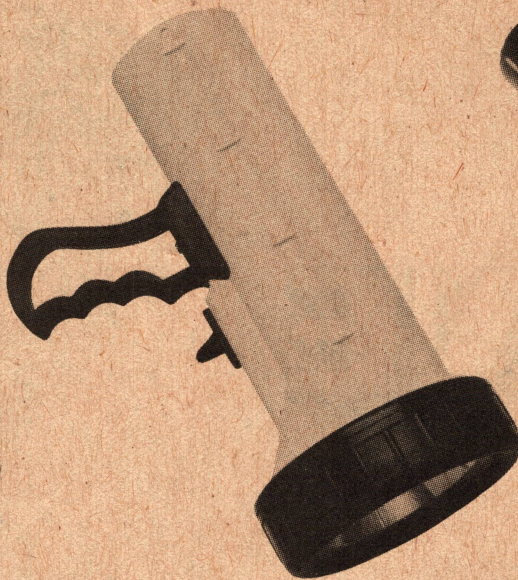


Dacor, UL 800

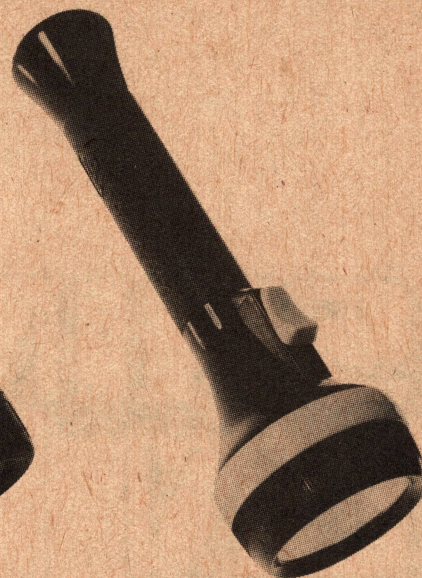




Aqua-Craft, Sabrina



Cressi-Sub, Astro



Cressi-Sub, Tanalux

seen, the regal Spanish dancer — a large, crimson colored nudibranch, with light colored gills, and a white border around its body. This nudibranch is a gorgeous creature to see when it crawls over the bottom, but is absolutely breathtaking when viewed swimming in open water, where it undulates its "skirt" like a true Spanish dancer. Ole!

Words do not easily describe the beauty, the pleasure or the excitement of such a dive. Fortunately, this intense experience was to repeat itself several more times before the end of our vacation. Looking back, later, I realized what an important contribution that simple dive light made to the enjoyment of my trip.

Dive lights, however, needn't be restricted to night diving, as many divers know. With newer, more efficient designs

in recent years, underwater lights have found increased applications in other areas:

Exploration — for poking into holes and crevices, caves, and wrecks (areas too dark to see into with ambient light alone).

Observation — for restoring the warm colors (reds, oranges, and yellows) that are absorbed underwater.

Photography — for spotting underwater subjects, as a modeling light (when attached to the strobe or flash gun), or as a focusing light (when used with SLR cameras).

Safety — for viewing pressure and depth gauges, compass, and watch in low light situations.

A multitude of topside uses — on the beach or boat, or in your car or camper; anywhere a strong, durable waterproof

light might come in handy. Indeed, underwater dive lights can be very versatile tools.

On the outside, dive lights appear to be relatively simple devices. In effect they are. But even with this simplicity, prospective buyers might want to consider some of the following factors in selecting a dive light — factors which can affect the light's performance, and the buyer's satisfaction for years to come.

BUDGET

One of the first decisions to make is how much you can (or want to) afford for a light. For comparison, suggested retail prices are listed in the table in this article. Keep in mind that rechargeable dive lights' prices include the battery and charging unit, while disposable battery type lights generally do not. So, if you're



Dacor, UL 900



Darrell-Allan, Sport Diver 250



Darrell-Allan, Sport Diver 250R

SHINE ON



Darrell-Allan, Bug Diver 400

on a tight budget, don't forget to include the cost of the disposable batteries. Buying a small, less expensive light can be another way to economize, initially. At some future time, if you want to step up to a larger, brighter, and more expensive light, your small one can still be used as a back-up light, or for poking around during the day, etc.

LIGHT OUTPUT

One of the most important factors to most divers is the light output of a dive light. Most people emphasize intensity (or brightness), but beam coverage (or angle) is just as important. In fact, beam brightness and angle should be considered together — neither characteristic can adequately describe light output by itself. For example, suppose we concentrate all of the light energy from a given

bulb and battery combination into a very narrow beam. Doing so would greatly increase the beam brightness, while at the same time greatly reducing the beam angle and, thus, the viewing area. Conversely, if the light from this same battery-bulb combination is spread over a very large angle the viewing area would be greatly increased, but the brightness would be greatly diminished. Generally, a compromise is reached, giving adequate beam intensity over a respectable beam angle. How bright and how wide a light's beam should be depends on your own applications. Because this is a roundup article, giving an overview of the various lights on the market, no attempt was made to test light output. You, however, can do a comparison of two or more lights yourself, by simply shining the lights in questions at a flat, light-colored

surface (e.g., a wall or ceiling), preferably at the same distance from which you intend to use the light. Assuming the batteries in the lights are in about the same condition, this comparison can give you a fairly good idea of the light's beam intensity, and coverage, as well as how even the beam appears (i.e., the presence or absence of intense hot spots and/or deep shadows). This simple comparison can generally be done quite easily at your local dive store, but be aware that, because of refraction, the light's beam pattern is likely to change when taken underwater.

BATTERIES

Batteries, the light's power supply, can be divided into two simple groups: disposables, such as carbon-zinc, and alkaline batteries, which are normally dis-

Farallon/Oceanic, Sea Light



Farallon/Oceanic, Fara-Lite 2000



Farallon/Oceanic, Fara-Lite 2001





Darrell-Allan, Dive Bright 500



Farallon/Oceanic, Ocean Pro 100



Farallon/Oceanic, Ocean Pro 101

carded after they are exhausted (drained); and rechargeables, such as nickel-cadmium (called ni-cads) and gel cells, which can be rejuvenated with a recharging circuit, and then re-used. Comparison of these types of batteries might include the following:

1. Price. For otherwise similar dive lights, the rechargeable ones have a considerably higher price tag — mainly because rechargeable batteries are expensive. If you use the light frequently, however, a rechargeable may be more economical in the long run. But if the light is used only occasionally, a disposable may be the better buy, especially if one or two sets of batteries can get you through the dive season.

2. Brightness. A really bright light in a small package generally requires the use of rechargeable batteries (because

of their greater capacity over disposables). Making slight sacrifices in dive light size, brightness, and/or burn time may allow the use of disposable batteries. Ni-cads and some gel cell batteries maintain a fairly constant voltage as they are discharged — so that the light intensity and color remain about the same during the burn time — then exhibit a sudden drop at the end. Disposables, on the other hand, show a continual drop in their voltage during discharge, such that the light falls gradually in intensity and turns yellowish as the battery's energy is consumed.

3. Burn Time. This can be considered the amount of time the dive light produces usable light and depends on the battery and bulb used. Typically, the brighter the light the shorter the burn time. For rechargeables, the burn time is

generally one or two hours. For disposables, the burn time may range from one to over ten hours, depending on use — since these batteries recover some of their strength when used intermittently. One or two hour burn times should be adequate for a single dive, but a replacement battery pack, or longer burn times would be recommended if the light is used topside as well as underwater, or for repetitive diving.

4. Charging Power. If you plan to recharge your batteries while on a dive trip, give some attention to what electrical power will be available. Most larger, local charter dive boats provide 110 volts, AC — fine, since most rechargeables come with a 110 volt, AC charger. For traveling abroad, consider a 220 volt, AC charger (or a 220 volt to 110 volt converter, available at many department stores). For

Ikelite, Mini-C



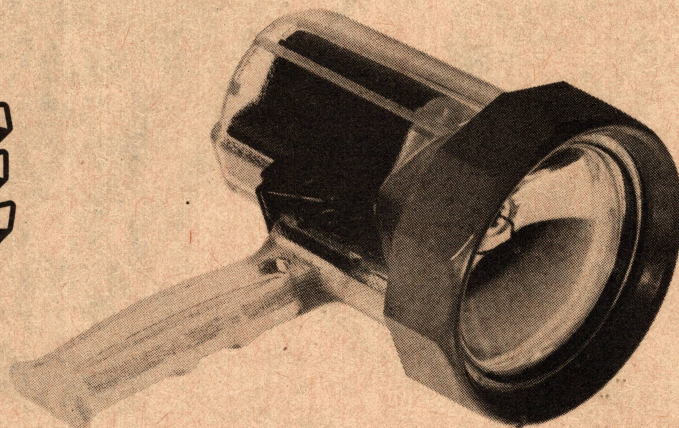
Ikelite, Mini-C II



Ikelite, Ikelite II



SHINE ON



Ikelite, Ikelite IIR

small boat diving, or dive trips in an automobile or camper, an optional 12 volt, DC charger may work well.

5. Charging Time. For rechargeables, charging times can vary from a few hours to over 20 hours, for a full recharge. Unless you carry extra batteries, the dive light may be out of service during this period of time. Shorter-than-recommended charge times may provide proportionately shorter burn times, but longer-than-recommended charge times (i.e., overcharging) may actually cause permanent battery damage.

6. Storage. Both disposables and rechargeables have reasonably good shelf lives, but each has its own problems. Disposables should not be left in the dive light for very long without use — in time they can leak and eventually damage the light. For long-term storage, disposable

batteries should be removed, and may be placed under refrigeration (to slow down deterioration). Rechargeables don't tend to leak, but they can discharge themselves slowly, and if left alone long enough can go into deep discharge. When this happens the battery may become permanently damaged. To avoid this deep discharge condition (in use or in storage), check the light's output periodically — if dim or yellowish in color, the battery should be recharged fully as soon as possible.

7. Interchanging Batteries. Some dive lights can be purchased in a disposable-battery version initially, then converted later by buying an optional rechargeable battery (and charger). Generally, the bulbs must be replaced too, because many bulbs designed for use with disposable batteries cannot withstand the

surge of power provided by rechargeables. (Some bulbs designed for use with carbon-zinc batteries will not even handle the surge from alkalines.) Check the light manufacturer's recommendations to be safe. A reasonably inexpensive way to convert to a rechargeable system is to replace the disposables with readily available "consumer" rechargeable batteries, such as General Electric's Perma-Cells, provided the light bulb is compatible. But don't expect the same performance from these as you would from commercial rechargeable batteries (e.g., from the dive light manufacturer) — the consumer grade batteries just don't have the same capacity.

BULB LIFETIME

Bulb lifetime is the time a bulb can produce useful service, and may range from

Princeton Tectonics, Bottom Light

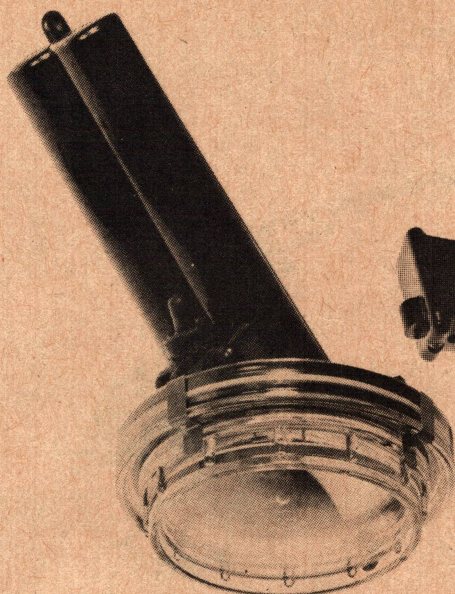


Scubapro, 4 Cell (30-541)

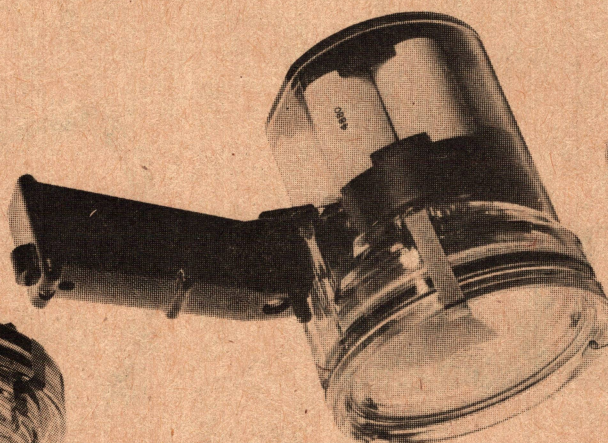


Scubapro, 6 Cell (30-540)

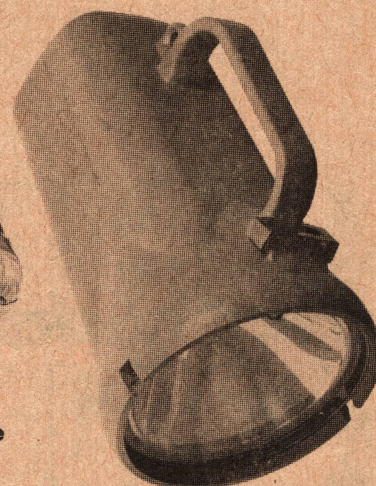




Ikelite, C-Lite II



Ikelite, Modular Superlite



National Divers, NDL 100

a few hours to a hundred hours (generally measured under laboratory, or ideal, conditions). In practical use, two major factors can affect a bulb's life: overvoltage — operating a bulb at higher than recommended voltage — can increase light intensity, but drastically reduce the bulb's lifetime; and physical shock from dropping, banging against objects or vibrations from car, boat or plane can literally break the filament. Protecting a lamp from overvoltage and physical shock should increase its life and lessen your aggravation.

BUOYANCY

The buoyancy desired in a light depends on diver preference and application, but in most cases should be close to neutral in the water. Some divers prefer a light that is slightly positive, so it will float

to the surface when released (also handy for boating use). And if it floats at the surface beam up, it should be easier to spot (provided the light is on). Other divers prefer slight negative buoyancy, so the light will stay on the bottom when placed there, thus freeing the hands to do something else (e.g., catch and bag a lobster, etc.). If a light is too negative or too positive, it can be tiring to haul around. Slight adjustments (in the negative buoyancy direction) can be made, if desired, by taping a small fishing sinker to some available space inside the light's case — but be sure not to let the sinker short out any electrical connections, or bounce around and break something inside.

SIZE AND SHAPE

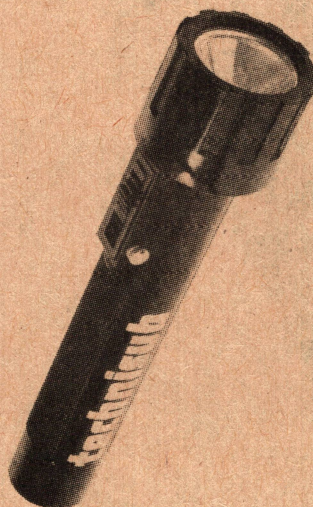
The size and shape of your dive light

will be determined, to a large extent, by your intended applications. If you need a very bright light with good beam coverage and acceptable burn time, you may have no other choice than to select one of the larger, heavier and more powerful dive lights. A number of medium size lights might meet your needs, and be more convenient to use, if you can accept a light with a little less brightness, beam coverage and/or burn time. By sacrificing a little in one of these areas, your applications may be completely satisfied by any one of the growing number of versatile, small dive lights. The convenience and versatility of the medium to small size lights is further enhanced by some available accessories: brackets and mounts, for attaching the lights to strobes, cameras, or tripods for underwater photography; and holders and

Serl, Serl



Technisub, Sealux



Technisub, Iodin



SHINE ON

pouches, for carrying the lights (securely tucked out of the way) on arms or legs, belts or equipment straps. Whatever the size, if the light is to be hand carried, the light's shape and/or handle should be comfortable to hold and its operation will be more convenient if the switch can be operated with a single hand (whether bare or gloved).

SWITCH MECHANISM

The lights in this survey have switch mechanisms that can be divided into four categories, each of which have advantages and disadvantages.

1. The screw-down switch mechanism is the simplest. Here, the lens is screwed down until the battery makes contact with the bulb or its holder. Generally reliable, this type of switch may fail if the spring

contacts become corroded or bent, and flooding may occur if sand is ground into the O-ring, or if the lens is unscrewed too far when turning off the light.

2. The toggle switch is also simple. Typically, it is mounted on the housing, and is sealed from the water with a rubber boot. It is easy to operate, but the boot is subject to deterioration with age and may become cut or torn accidentally if not protected. If flooded, the switch may need replacing.

3. The mechanical type control consists of an O-ring sealed shaft which penetrates the case and actuates an internal switch directly, or moves the battery pack into position to make electrical contact. This type offers the greatest variety in control knob designs, and methods of preventing accidental turn-on. Occasional disassembly, inspection, lubrica-

tion and/or replacement of the O-ring may be necessary to prevent leakage. And in some designs, the internal switch may have to be replaced if flooded.

4. The fourth type of mechanism is magnetically controlled. A sliding switch control, outside the case, contains a magnet, which when moved back and forth causes a reed switch just inside the case to make and break contact. Since there are no through-holes in this design, there will be no leakage from this switch. But if the magnet loses its strength, or the (somewhat) delicate reed switch malfunctions, or becomes dislodged from its original position, the light may fail to operate.

MAINTENANCE

As with any piece of dive equipment,

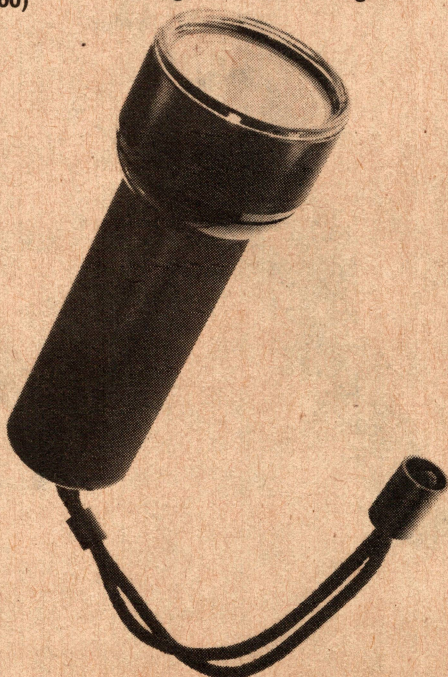


Tekna, Tekna-Lite I (1700, 1705)
rechargeable/nonrechargeable

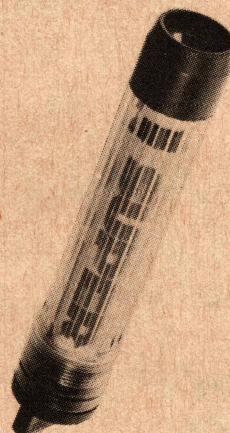
Tekna, Tekna-Lite II (2000)



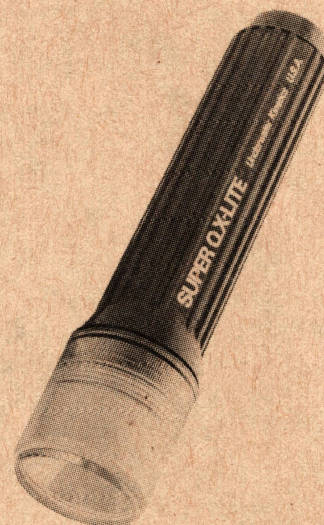
Tekna, Tekna-Lite III (1900, 1905)
rechargeable/nonrechargeable



Underwater Kinetics, Super Q-Lite



Underwater Kinetics, Super QX-Lite



DIVE LIGHT ROUNDUP

DISTRIBUTOR/ MANUFACTURER	MODEL	SIZE (inches)		WEIGHT (lbs.)		BATTERY TYPE OR RECHARGE TIME (hrs.)	MAX. BURN TIME (hrs.)	CASE MATERIALS	NOTES	PRICE (\$)
		Dia.	Length	In Air	In Water					
AQUA-CRAFT	Aqua Lite	5¼	10	6.6	-0.7	8 D	12-18	Aluminum	Housing is gold anodized and fuse coated	89.95
	Sabrina	2¾	10½	1.2	-0.2	3 D	27-30	Lexan	SCS, L	34.95
CRESSI-SUB	Tanaflex	4	13¼	2.3	-0.2	4 D	10-12	ABS Plastic	Tempered glass lens, SCS, L	66.00
	Astro	5¼	11¼	3.3	-0.2	6 D	5-6	ABS Plastic	Tempered glass lens, SCS, L	82.00
	Mini-Flash	2¾	7	0.8	-0.1	4 AA	2	ABS Plastic	SCS, L	50.00
DACOR	UL 700	5¼	7¾	3.0	+0.7 FBU	1 6v	2-2½	Cyclocac Plastic	Optional rechargeable battery and charger, SCS	31.50
	UL 800	5¼	7¾	3.7	+0.1 FBU	10-15	2	Cyclocac Plastic	Optional 220v AC and 12v DC chargers, SCS	85.00
	UL 900	5¼	8½	3.8	-0.1	10-15	2	Cyclocac Plastic	Optional 220v AC and 12v DC chargers, SCS	95.00
DARRELL-ALLAN	Sport Diver 250	5½	8¼	4.5	+0.2 FBU	10 D	3-4	ABS Plastic	Prices are without batteries, epoxy coated base	49.00
	Sport Diver 250R	5½	8½	4.6	+0.1 FBU	14-16	2	ABS Plastic	Prices are without batteries or charger, epoxy coated base	55.00
	Bug Diver 400	5½	8	6.1	-1.3	10 D	3-4	Aluminum	Prices are without batteries, epoxy coated base	63.00
	Dive Bright 500	5½	8½	6.3	-1.4	14-16	2	Aluminum	Prices are without batteries or charger, epoxy coated base	69.00
FARALLON/OCEANIC	Ocean Pro 100	5¼	8½	3.9	+0.8	1 6v	6-8	Cyclocac Plastic	Optional rechargeable battery and charger, SCS	43.00
	Ocean Pro 101	5¼	8½	5.0	-0.3	16	3	Cyclocac Plastic	SCS	99.00
	Sea Light OS100	5	6¼	2.4	+0.8	16	1½	Cyclocac Plastic	SCS	85.00
	Fara Lite 2000	4¾	11½	1.8	-0.1	12-14	1-2½	Cyclocac Plastic	Large 4" lens, SCS, L. Hi/Lo settings	120.00
	Fara Lite 2001	3	11½	1.0	+0.2	12-14	1-2½	Cyclocac Plastic	Small 2" lens, SCS, L. Hi/Lo settings	120.00
IKELITE	Mini-C	2¾	6½	1.0	-0.1	4 C	4-6	Cyclocac Plastic	Optional holster	19.95
	Mini-C II	2¾	6½	1.0	-0.2	16	2	Cyclocac Plastic	Optional holster	49.95/51.95
	Ikelite II	5¼	7¾	3.3	+0.5 FBU	1 6v	6-7	Lexan	SL-0	26.95
	Ikelite II R	5¼	7¾	3.7	-0.2	10-15	2	Lexan	SL-0	69.95
	C Lite II	5½	11	2.3	-0.1	15	1-1½	Cyclocac Plastic	Standard 110/220v AC charger, 12v DC charger optional, SCS	99.95
	Modular Super Lite	5	6¼	4.4	-0.5	15/3	1-2	Lexan	Spot or flood light settings, optional 12v DC charger	174.95
NATIONAL DIVERS	NDL 100	5	8¾	5.4	-1.3	8 D	13-15	Aluminum	Epoxy coated case	79.00
PELICAN PRODUCTS	Sabre Lite	1¾	7¼	0.6	NA	3 C/8*	3-5	Thermal Plastic	Spring mounting clip (with case and charger 69.95)	29.95
PRINCETON TECTONICS	Bottom Light	2½	6¼	0.9	-0.2	4 C	5	Lexan	Steel encapsulated and mercury wetted magnetic switch mechanism, SL-0/0, holder available	19.00/20.00
SCUBAPRO	30-541	3¾	13	1.9	-0.1	4 D	10-11	Plastic	Rubber lens protector available, SCS	38.00
	30-540	3¾	17¾	2.6	-0.4	6 D	5-6	Plastic	Rubber lens protector available, SCS	42.00
SERL	Serl	5½	8½	4.8	+0.1 FBU	10 D	5-6	ABS Plastic	Light reflector on back, SL-0/0	64.00
TECHNISUB	Sealux	2¾	12	1.5	-0.2	4 D	NA	ABS Plastic	Glass lens, SL-0, L	NA
	Iodin	2¾	11¼	2.0	-0.6	15*	1	ABS Plastic	Glass lens, SL-0, L, 220v AC, 12v DC charger	NA
TEKNA	Tekna Lite I 1705/1700	2½	5	0.6	+0.1 FBU	4 AA/14-16	1½/1	ABS Plastic	1700 price includes charger, L	18.95/39.95
	Tekna Lite II	1½	6	0.2	-0.1	2 AA	4	ABS Plastic	Holder and optional flasher blub available	9.95
	Tekna Lite III 1905/1900	2½	7	0.8	-0.1	8 AA/14-16	1½/1	ABS Plastic	1900 price includes charger, L	29.95/59.95
UNDERWATER KINETICS	Super Q	1¼	7½	0.5	-0.2	8	2	Lexan	Facetted reflector, 220v AC and 12v DC chargers available	50.00
	Super QX	1½	6¾	0.5	-0.2	8	2	Lexan	Facetted reflector, 220v AC and 12v DC chargers available	59.95
	Super QXL	1½	7¾	0.6	-0.2	3 C/13	2-3/1	Lexan	Facetted reflector, 220v AC and 12v DC chargers available	19.95/69.95
	3000	3¾	7¼	3.5	-0.4	16	2-3	ABS Plastic	Facetted reflector, pistol/bucket handles available	75.00/79.00
	3500	3¾	7¼	2.6	+0.5 FBU	1 6v	4-5	ABS Plastic	Facetted reflector pistol/bucket handles available	30.00/34.00
	4500	3¾	10¼	4.1	+0.1 FBU	2 6v	4-5	ABS Plastic	Facetted reflector, pistol/bucket handles available	45.00/49.00
	Mini-Sun	4**	12**	5.5	NA	Surface supply cord or optional 12v DC rechargeable battery pack	1½	Lexan	Smaller battery pack available later in 1981	NA
	Aqua-Sun	4**	1½**	11	NA	Surface supply cord or optional 24v DC rechargeable battery pack	1½	Lexan	Smaller battery pack available later in 1981	165.00
U.S. DIVERS	Brite Lite II 7298	6½	7½	3.5	+1.4 FBU	4 D	13-14	ABS Plastic	Lexan Safety lens	76.00

FBU—Flints beam-up

*—When batteries are charged, charger automatically switches to a trickle charge to avoid overcharging.

NA—Not available

**—Battery pack dimensions, lamp is housed separately.

L—Lanyard included

SCS—Switch has click stops at off and/or on position.

SL-0—Switch is lockable in off position.

SL-0/0—Switch is lockable in off and on positions.

SHINE ON


maintenance can be an important factor in keeping a light in satisfactory operating condition. Some helpful tips have already been mentioned, regarding battery and light bulb care. Most maintenance work is primarily a matter of common sense. Rinse the light after use, and dry (and store) in a cool place (heat can degenerate batteries and cause excessive internal pressure in a sealed light). When the light is open, avoid touching the reflector (and halogen bulb, if any) with bare fingers (tarnishing may result), shorting the battery terminals (electrical shock is possible) and dripping water inside. When reassembling the light, be certain that wires, if any, are out of the way, and O-rings (or gaskets) and mating surfaces are clean and will make a proper seal (a light coating of silicone grease, or vaseline is helpful here — but

avoid silicone spray, as this can damage some plastics). If flooded, turn off the light immediately, drain, rinse with clean fresh water (or a 50/50 mixture of fresh water and alcohol), then dry thoroughly (in open air, or with dry air from a scuba tank or a hair dryer).

When traveling, the following points are worth remembering: Release the light's seal to relieve any pressure differences during air travel (but be sure to check the seal prior to entering the water). Secure the switch in the off position, or insulate one or both battery contacts, to prevent accidental turn-on and subsequent battery drain while in transit. Take spare parts, bulbs, batteries and a few simple tools for repair and/or replacement jobs. And, hand carry any lamp bulbs, or pack them very carefully to prevent damage from physical

shock or vibration during transit.

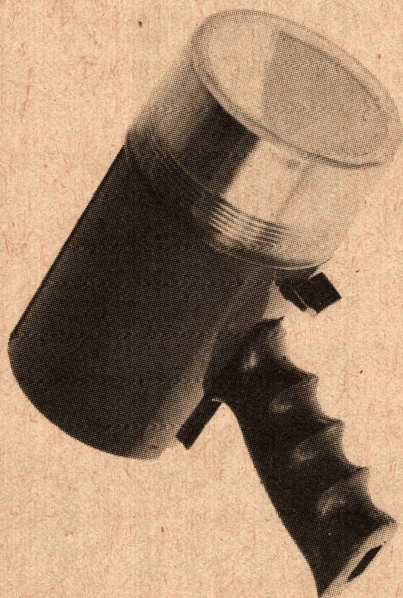
In addition, some future headaches may be avoided by talking to dive shop sales or service personnel while you're out shopping for a new light. Inquire about the track record of the light(s) you are interested in. Customer satisfaction, professional repair service (by the shop or the manufacturer), replacement parts availability and delivery times, and the manufacturer's warranty are a few items worth discussing.

The dive lights surveyed in this article cover a wide range of designs, beam characteristics, applications and prices. Some have been proven through years of use. Others are newer, incorporating modern materials and technology. With such a broad selection, whatever your needs or budget, there should be at least one light that can light up your life. 



Underwater Kinetics, Super QXL-Lite
rechargeable/nonrechargeable

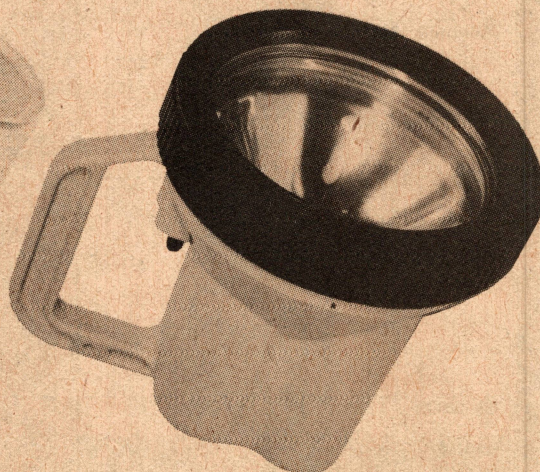
Underwater Kinetics, 3000, 3500
rechargeable/nonrechargeable



Underwater Kinetics, 4500



U.S. Divers, Brite Lite II



The purpose of this report is to give you a look at an inexpensive, simplified approach to U/W movies: The Fujica P2 camera and Fujica Marine-8 P2 watertight casing.

THE FUJICA P2 CAMERA

Ease of operation and compact size are the two most obvious features of the Fujica P2 Single-8 movie camera. Basically, all you have to do is aim and shoot. The lens is prefocused, and exposure is automatically controlled. This jacket-pocket sized camera measures only 4.7 x 1.8 x 4.3 inches, weighs about ten ounces with batteries and film inside, and comes with a form-fitting carrying case for protection from dust and scratches.

The Fujinon lens has an aperture range from f1.8 to f16, a focal length of 11.5mm and accepts 24mm filters. It is prefocused to give sharp pictures from a few feet away to infinity. The near limit of sharpness (depth of field) is about 8.5 feet at f1.8, 6.5 feet at f2.8, 4.3 feet at f5.6 and 2 feet at f11. These are for measured distances in air, or apparent distances underwater.

The SLR (single-lens reflex) viewfinder allows through-the-lens viewing above water, so what you see in it closely approximates what you'll get on film. If there isn't enough light for an exposure, an underexposure warning flag appears. The viewfinder also has an eyesight correction which allows you to focus the finder to your eye. This is an important feature if you wear eyeglasses.

The exposure control is fully automatic. When a film cartridge is placed inside the film chamber, it mechanically programs the metering system for the ASA film speed — ASA 25, 50, 100, 200 or 400. The meter photo cell, located just above the camera lens, measures the light reflecting to the camera from the subject, and the system automatically selects the correct aperture.

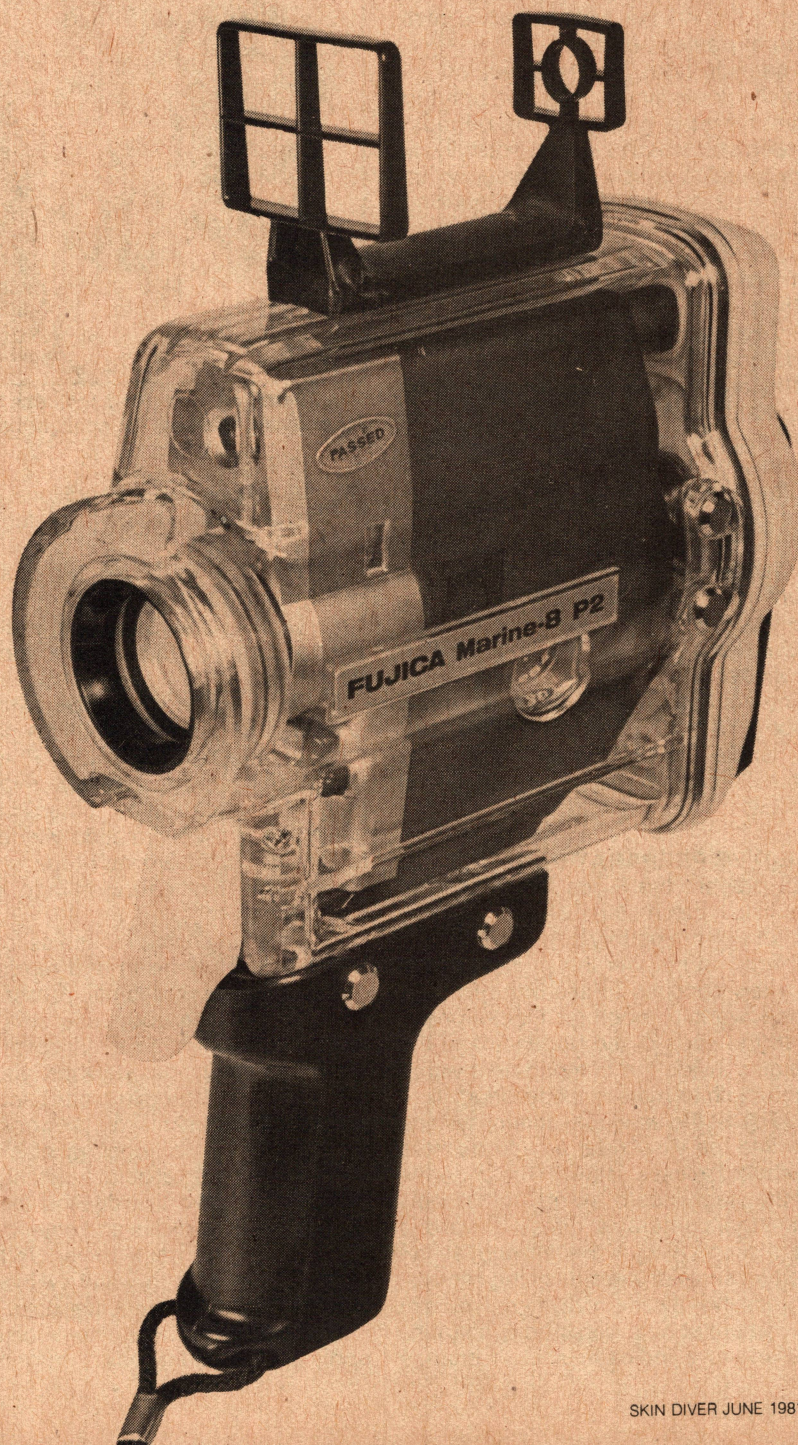
Two size AA penlight cells power both the automatic exposure control and the standard 18fps film advance. The film footage counter has a moving indicator that travels along scales for both feet and meters. When the counter indicates 50 feet (15m), and the white dot on the film advance spindle in the film confirmation window doesn't rotate when the shutter release is fully depressed, you are out of film. A single 50 foot cartridge of film provides about three minutes and 20 seconds of filming.

The shutter release is the only control you need to operate manually. The release slides to the left for the L (lock) position, and to the right for the R (run) position. With the release button in the R position, look through the viewfinder. If the underexposure flag moves completely out of sight when you depress the shutter release button halfway, there is enough light for an exposure. Depress the shutter

FUJICA MARINE-8 P2 U/W MOVIE SYSTEM

**fujica introduces a new housing
for subsea home movies**

Text and Photography by Jim and Cathy Church



release completely, and you are shooting movies. The shutter has a 220 degree opening (a semi existing-light capability) with an effective shutter speed of 1/30 second. This, combined with the wide f1.8 aperture, allows you to film in relatively dim conditions.

An optional LBA-12A x 4 filter is available. It is used for exposing indoor (tungsten) film with sunlight. Should you decide to use another (non-Fuji) filter, be sure to place a matching filter or piece of filter gel over the exposure meter photo cell.

THE MARINE-8 P2 CASING

The Fujica Marine-8 P2 underwater casing (housing) was designed specifically for use with the Fujica P2 movie camera. It is made of molded plastic and fits snugly around the camera with a minimum of wasted space.

The main body is transparent, so you can check the film counter and aperture indicator at a glance. And because molded plastic isn't the best optically, an O-ring sealed optical glass lens port has been built into the front of the housing. The back cover is made of molded, yellow plastic and attaches to the main body with a simple locking lever. A gasket (O-ring) in a groove in the rear of the main body forms the seal between the body and back cover.

The large shutter release trigger is located at the front of the housing and extends partway down in front of the handle to form a pistol grip. You can squeeze the shutter release slowly, gently and comfortably with either the left or right hand.

An accessory sportfinder slips over a molded rail on top of the casing. The sportfinder must be used whenever the camera is inside the casing because the rear cover blocks the view to the SLR viewfinder.

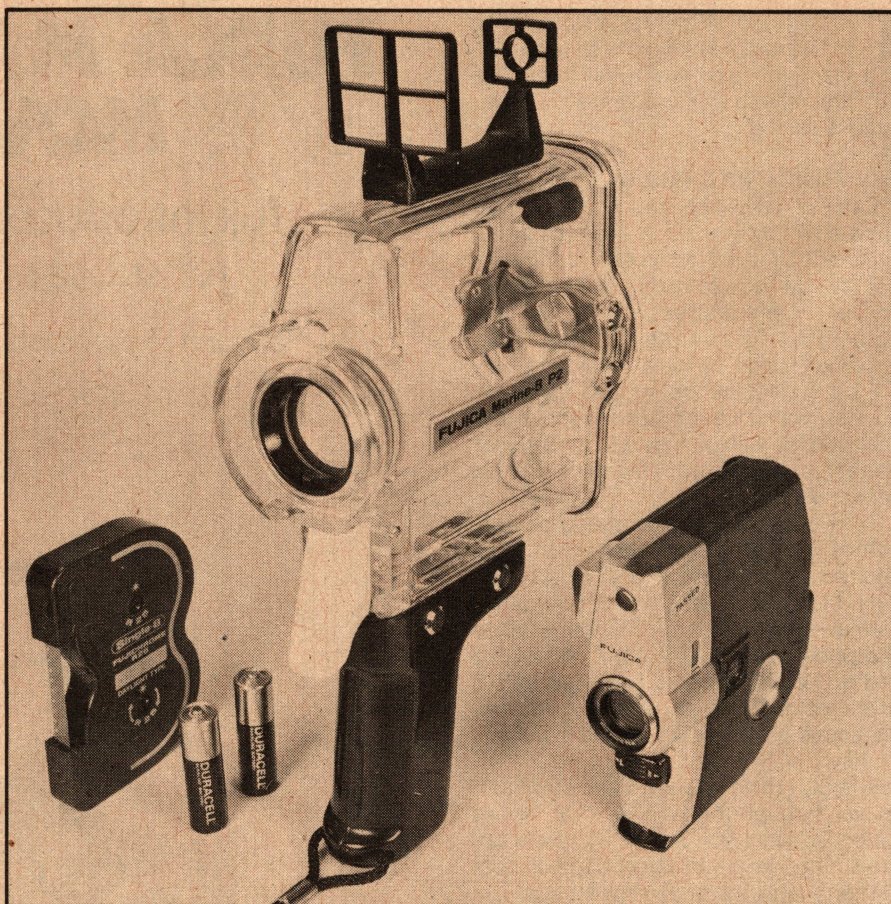
The compact casing measures about 3.1 x 7.3 x 10.9 inches, which includes the handle and sportfinder, and weighs about 23 ounces. The rated depth limit is 100 feet.

PRE-DIVE PREPARATIONS

To prepare the Fujica P2 camera for use, follow these steps:

1. Check the battery condition with the test light, and trigger the shutter release for a few seconds to see if the film advance works smoothly. Occasionally clean the ends of the batteries and the contacts inside the compartment with a rough cloth to remove oxide deposits.

2. To test the exposure control system, look into the viewfinder as you depress the shutter release halfway. The underexposure flag should swing out of view when the camera is aimed toward a bright area. Also, while looking at the aperture scale on the side of the camera, depress the release halfway as you aim the camera at both dark and light areas. The aperture indicator should change



The P2 U/W movie system includes the Fujica P2 Single-8 movie camera, Fujica Marine-8 P2 housing, two size AA penlight batteries, U/W sportfinder and Fujichrome Single-8 film.

with the different light conditions.

3. If necessary, clean the lens with cleaner and tissue.

4. Use a blower brush to remove any dust or lint from the film compartment. Note: Don't use this brush on the lens as it will be contaminated with dirt and lubricant.

5. Place the film cartridge in the film chamber. Be sure that the film engages the pressure plate correctly. Press the shutter release in completely for a moment. The white dot on the spindle beneath the film confirmation window will rotate if film is advancing properly. If not, remove the film cartridge and reload correctly.

Prepare the casing for use as follows:

1. Open the housing and remove the gasket (O-ring). If it is still pressed into the groove of the body, use the gasket extractor attached to the rear cover to pry it out. The instructions state that you wipe the gasket and groove clean, and then replace the gasket. We suggest you apply a thin, even coating of silicone grease to the gasket before placing it into the groove. Keep this coating thin or it will hold sand particles and other debris.

2. Attach the back cover and submerge the casing in water (without the camera inside) to check for leaks.

3. Use a toothpick or other such tool to apply a tiny amount of silicone grease to

the shutter release control where it penetrates the casing. Although not in the instructions, this protects the sealing O-ring.

4. Make sure that the inside of the casing is clean and dry. Clean the lens port with cleaner and tissue if necessary.

5. If you are placing the camera inside the casing for the first time, cut the wrist strap from it with a knife or scissors. A removable, replacement strap is provided with the casing.

6. Gently slide the camera into the casing, making sure the back cover seats squarely. Then, turn the lever to the lock position.

USING THE SYSTEM

The Fujica P2 camera and Marine-8 P2 casing is an all-weather camera system for boaters, surfers and others engaged in water sports as well as for U/W photographers.

The 11.5mm focal length of the movie camera lens is comparable to an 80 or 85mm lens on a 35mm camera. To give you an idea of the topside picture area covered, Cathy's 5'6" head-to-toe image fills the viewfinder from top to bottom at a distance of about 20 feet. Although this is mild telephoto when compared to a still camera, it is typical coverage for a movie camera. The 11.5mm Fu-

(Continued on Page 116)

CARIBBEAN MEXICO

COZUMEL • CANCUN • ISLA MUJERES • QUINTANA ROO

SKIN DIVER MAGAZINE
SPECIAL TRAVEL GUIDE



Ask any well-traveled diver about Mexico's Caribbean and you're sure to hear about Cozumel. Tales of unlimited visibility and mountainous reefs here are legendary and true. The aquamarine waters that flow by this island in the sun are among the clearest in the world and famed Palancar Reef deserves its reputation as the Grand Canyon of the underwater Caribbean. Add to that the convenience of short inexpensive flights from several points in the states, a legion of diver services, and a special Yucatecan style of Mexican ambience and hospitality, and you have one of the world's greatest dive destinations.

Now it is possible for divers to consider additional destinations in Mexico's Caribbean. Cozumel is joined by two sister islands, Cancun and little Isla Mujeres, in offering services and a variety of underwater experiences. The three islands are located off the Yucatan peninsula within a 50 mile radius which also includes part of the Quintana Roo coastline. They are serviced by connecting flights and numerous ferry boats and are as different and diversified in their attractions as they are close geographically.

Nowhere in the Caribbean is there a greater variety of activities to satisfy the appetite of the most inquisitive and adventurous traveler. For the experienced diver there are precipitous drop-offs, schools of thousands of fish, sheltered lagoons, and sea water as clear as a mountain stream. For the beachcomber there are a hundred hidden coves lined with powdery sand and swaying palms. There is the adventure of a trek through the tangled jungles of Quintana Roo and the excitement and mystery of exploring a Mayan pyramid. Shoppers will find a myriad of temptations, from artistic black clay sculptures to colorful Mexican blankets to chic "Acapulco Joe" T-shirts. The nighttime adventurer will find a variety of dancing and disco till dawn. For those who best remember the places they visit by the restaurants they discover there is gourmet seafood, traditional Mexican fare, authentic Mayan specialties, and even some of the best pizza on either side of the border.

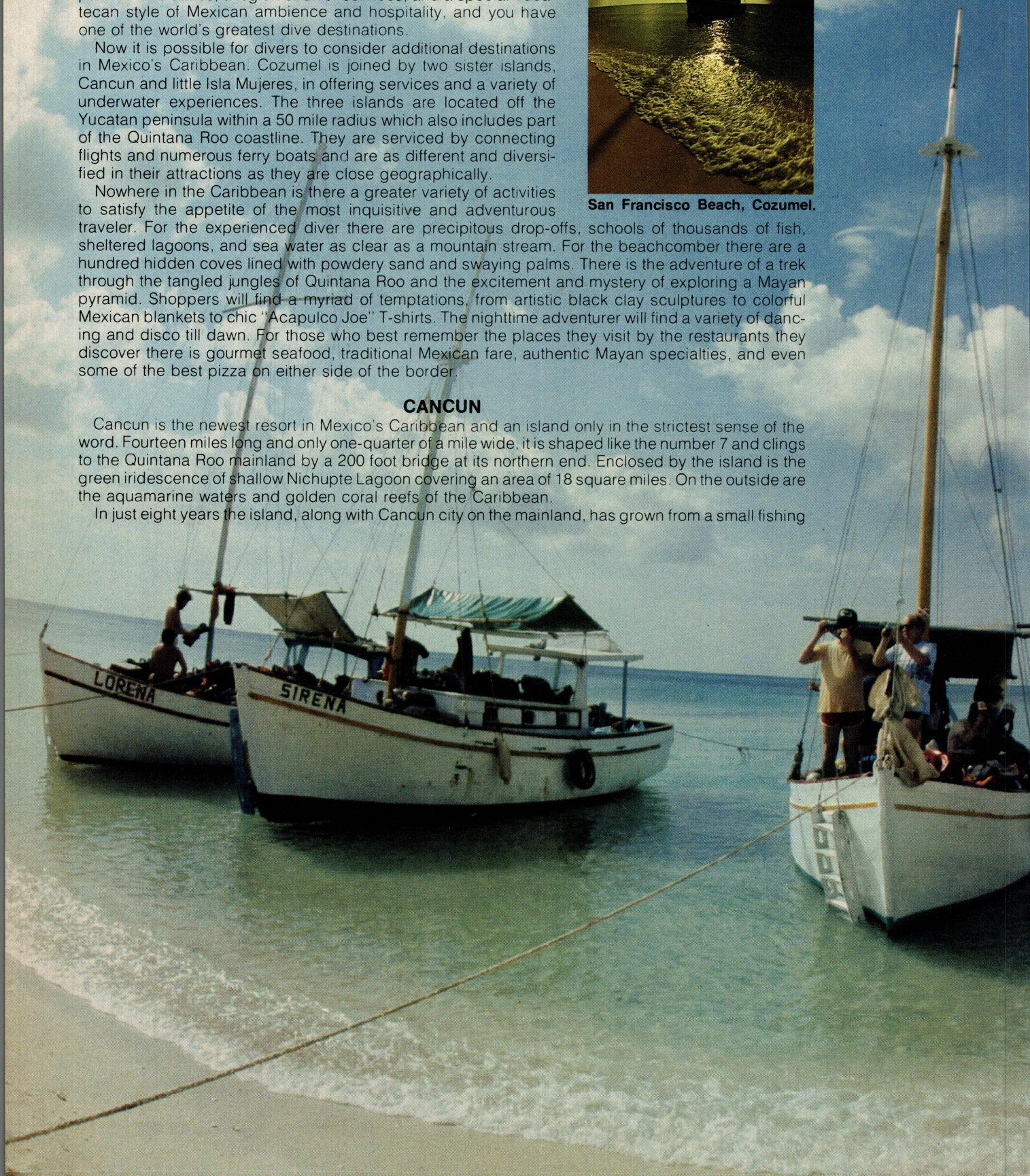
CANCUN

Cancun is the newest resort in Mexico's Caribbean and an island only in the strictest sense of the word. Fourteen miles long and only one-quarter of a mile wide, it is shaped like the number 7 and clings to the Quintana Roo mainland by a 200 foot bridge at its northern end. Enclosed by the island is the green iridescence of shallow Nichupte Lagoon covering an area of 18 square miles. On the outside are the aquamarine waters and golden coral reefs of the Caribbean.

In just eight years the island, along with Cancun city on the mainland, has grown from a small fishing



San Francisco Beach, Cozumel.



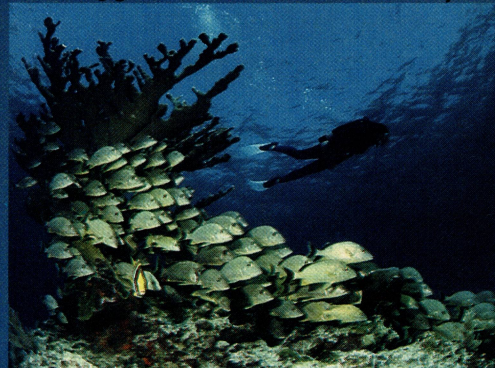
Jeanette Holmes at Yocab Reef.



Street scene, downtown Isla Mujeres.



Schooling grunts, Little Manchones, Isla Mujeres.



Xcaret Lagoon on the Quintana Roo Coastline.

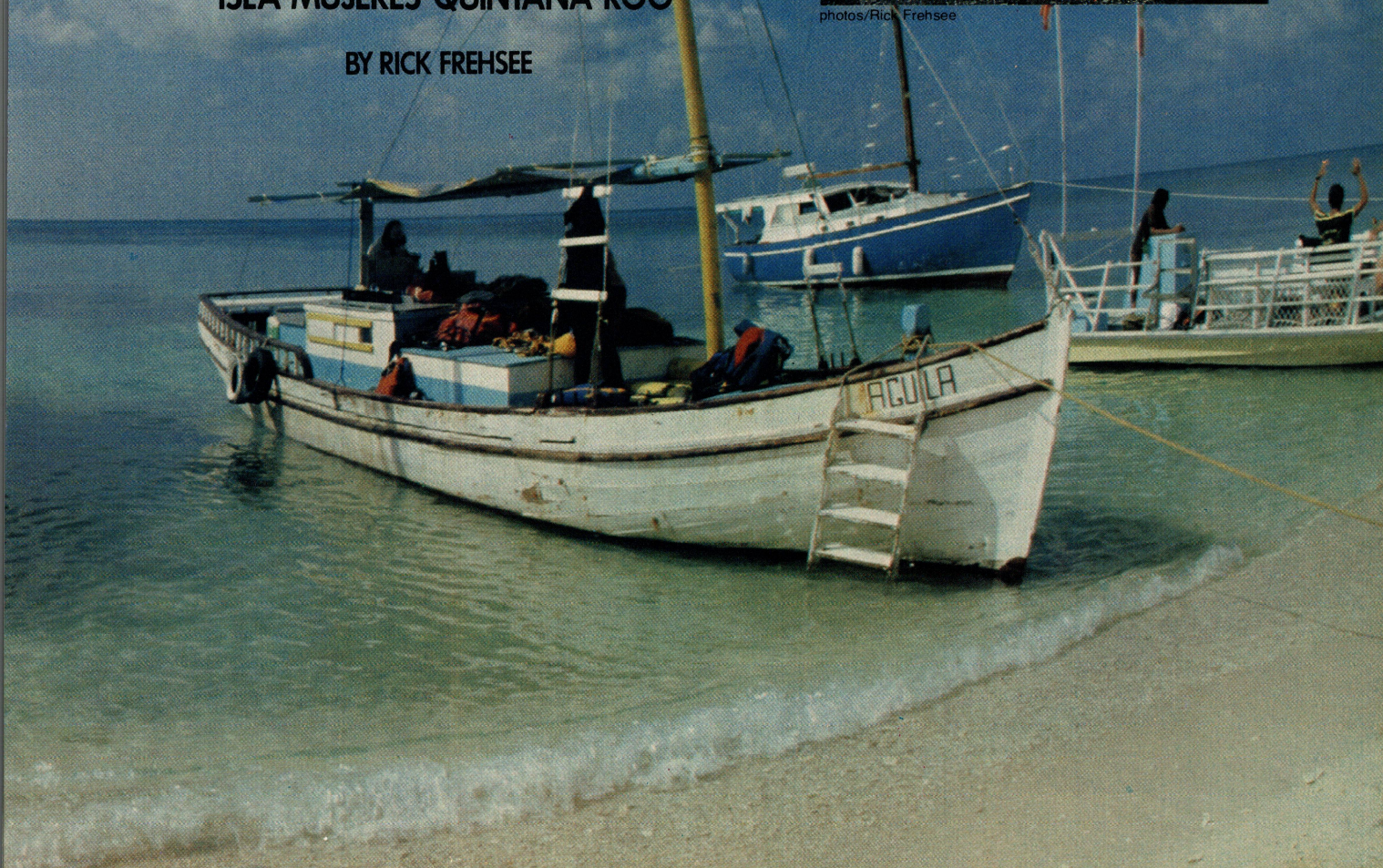


photos/Rick Frehsee

MEXICO Caribbean

COZUMEL • CANCUN
ISLA MUJERES • QUINTANA ROO

BY RICK FREHSEE



village to a thriving resort center with a support population of 50,000. No happy accident, Cancun is the result of an exhaustive study by the Mexican government which considered the sum of "meteorological and geographical factors, transportation facilities, and tourist preferences and habits." The result is a well orchestrated 12 mile stretch of public beaches, handsome hotels, plus marinas and yacht basins, restaurants, condominiums, a shopping and convention center, and a championship golf course; all accessible via a divided coastal boulevard.

The development is well controlled and the height, size and density of the buildings are regulated to avoid crowding. The airport, 12 miles away on the mainland, was designed to accommodate the largest aircraft in service. Cancun's touristic charms are so impressive that despite a speedy arrival it must now be considered Mexico's finest resort island.

Cancun is also a good place for scuba divers. Presently, there are three full service dive operations, six well outfitted dive charter boats and some interesting and unusual diving. Cancun, however, does not cater to large diving groups. The first-class hotels are \$100 and up per night, EP, and the boats carry a maximum of six to eight passengers. Prices in general are 20 to 25 percent higher than in Cozumel; this includes the dive operations.

Another consideration is the wind, which often gusts in the wintertime reducing visibility and preventing all but the toughest sailors from getting to the offshore reefs. After checking the log-books of the Cancun operators, we determined that there are approximately 250 good dive days out of the year. Not a bad ratio by world standards, but watch out in the winter months.

While Cancun is not group discount fare and winter brings questionable winds, hundreds of readers will consider Cancun for family vacations and business conventions. Rest assured that good diving and quality services are available. And, if you are planning a vacation specifically for the diving, the best bet is summertime. The major advantages of Cancun are that it is an easy place to get to with the largest selection of activities and the greatest access to the mainland of any of the islands in the Mexican Caribbean.

The diving available near Cancun ranges from average to excellent. The majority of reefs are shallow, 30 to 35 feet deep, and are best described as striated or elongated patch reefs capped with elkhorn coral. Expect mild to strong currents from the southeast on most offshore dives. There are no drop-offs and no significant wreck sites in the area. The most popular reef is **Los Manchones** which is closer to Isla Mujeres than Cancun and shared with the Isla dive operators. The highlights of Cancun diving are the

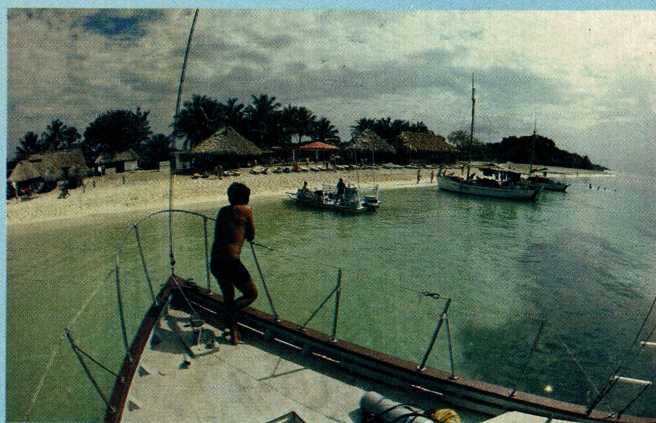
clouds of fish on the reefs and the road trips available to the secluded caves and lagoons along the Quintana Roo coastline. The half day reef trips are one or two tank options and C-cards, BC's and pressure gauges are required. Most divers find a wetsuit jacket comfortable year round. A full suit may be needed in mid-winter.

A few hundred yards off Playa Caracol near Punta Cancun is a large undefined bottom area of scattered heads and sea whips. The general area is called **El Chital** and it is somewhat protected from the prevailing winds by Punta Cancun. However, the 15 to 20 foot depths are more suitable for snorkeling and training dives and not a major attraction for accomplished scuba divers. Located one and one-half miles north of Punta Cancun is the area known as **Los Cuevones**. This excellent narrow reef features ledges, overhangs, small caves, and fissures. The caves are actually deep undercuts around the base of the reef providing protection and solitude for numerous bottom fish and a few green morays. Depths average about 35 feet. I first dived this spot with Carlos Austin of the Mundo Marino dive center. We entered the water at the northern end of the reef while Carlos maneuvered his Phoenix 28 foot custom dive boat to follow the path of our dive. The current almost always runs along the length of the reef, allowing a drift dive with the dive boat tracking a float trailed by the divemaster. This small

Below right, Santa Rosa Wall, Cozumel. The big fish here are exciting but the prominent orange sponges make this dive unique.



Above, the white sand beach at the Cancun Sheraton Hotel. Construction on Cancun is well regulated. The size and density of new buildings are controlled to avoid crowding. Below, Cozumel's San Francisco Beach is a popular site for seafood picnics.



COZUMEL ISLAND

a marine fantasy

"If you were not aware of Cozumel's intriguing history, you would swear the island was created purely for tropical vacation pleasure . . . Cozumel is more than just another island in the Caribbean — it is a state of mind."

Paul J. Tzimoulis
Publisher/Editor
Skin Diver Magazine



Fantasia Marina has joined the four leading beach resort hotels to offer you a diversity of diving packages from the low range to the ultimate.

Yes, I'm interested in your Marine Fantasy, Cozumel Island. Please send me more information about the following hotels:

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☐ CANTARELL HOTEL

☐ CABAÑAS DEL CARIBE HOTEL
☐ MAYAN PLAZA HOTEL & BEACH CLUB

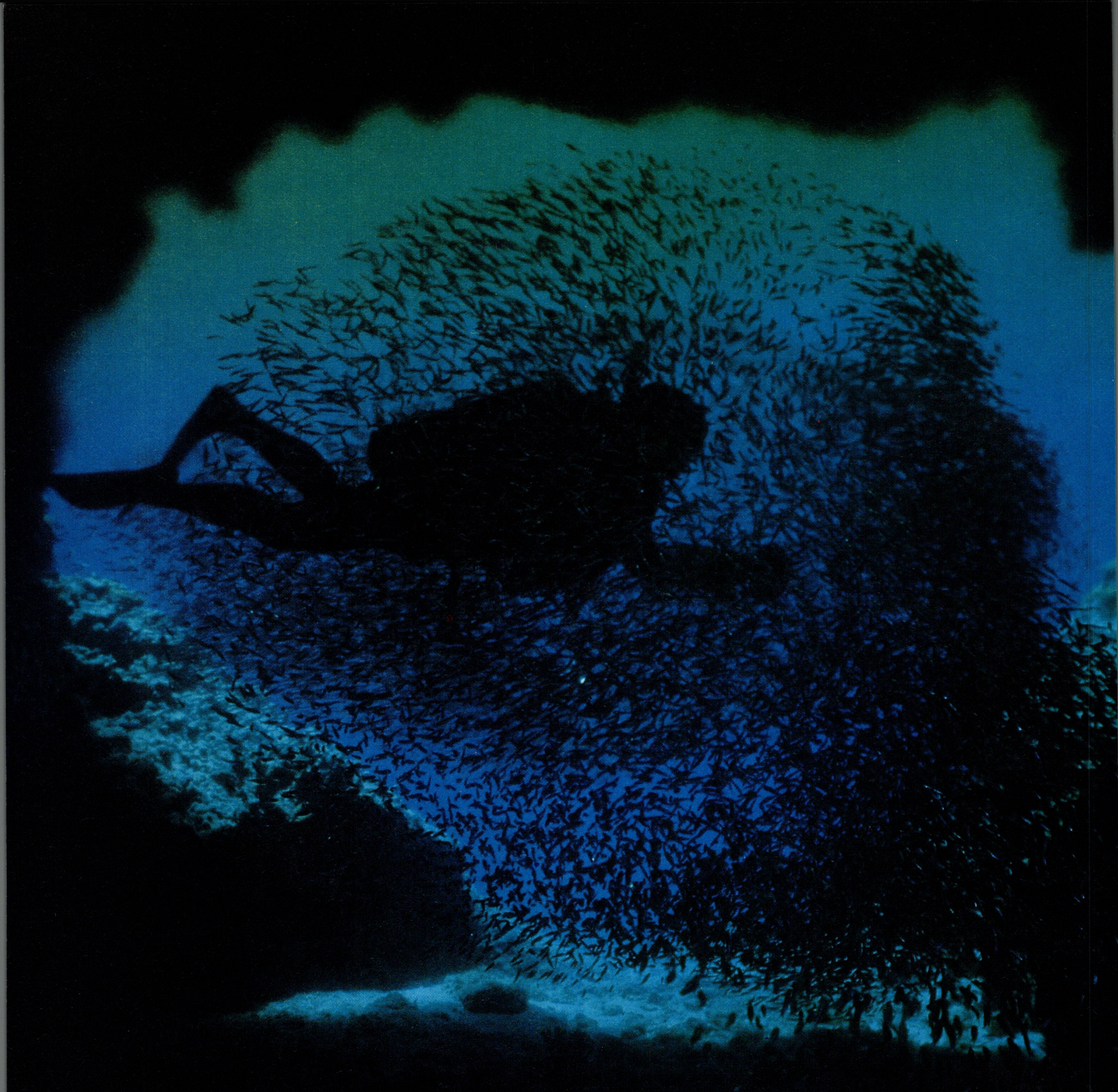
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City _____

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This cave at Chancanab, Cozumel contains both fresh and salt water which creates the eerie glow in this photo of a diver and baitfish.

photo Geri Murphy

reef is not quite as well known as some of the others and, as a result, the marine life is quite active.

La Bandera is a reef that is fairly easy to find as it is marked by an exposed rock with a stake on top. It is a fairly large elongated reef spur located nearly two miles NNE of Punta Cancun, almost halfway from Cancun to Isla Mujeres. The depths average 30 to 35 feet and conditions are similar to Los Cuevones with meandering schools of grunts, snappers and goatfish. The reef formation is topped with elkhorn coral and punctuated with ledges and overhangs. A drift dive is almost always recommended. **La Banderita** is one-fourth mile to the north and as

the name implies, it is a mini-version of La Bandera.

The reefs off Punta Nizuc on the southern end of Cancun are somewhat remote but interesting. This wide series of patches is the beginning of a continuous reef system which stretches from Yucatan in the north to Honduras in the south. Scattered wreckage in the area is nearly obscured by reef growth.

The first two days we were in Cancun the wind roared. On the third day the wind shifted and then dropped, and the snarling sea became as flat as a bowl of Jello. When the wind blew, we concentrated on exploring the caves and lagoons of the mainland, and when it died

we snuck out to offshore reefs, a plan we recommend to visiting divers. Our most exciting dives were on the **Punta Cancun** reefs located two miles east of the Camino Real Hotel on Punta Cancun. This large reef, in 60 to 65 feet of water, faces the tradewinds which produce large seas and prevent regular visits. This is unfortunate as the complex reef system made up of huge irregular spurs and small patches with broad sand channels, is the underwater equivalent of the jungles of Quintana Roo; wild, untamed and unpredictable. During our dives here we saw many large grouper, lots of grunts and snappers, a few large amberjack, big barracuda, and even a couple of

sharks. One lobster we caught had an 11½ inch tail. The visibility was never less than 80 feet and occasionally it was 100 feet. Also, these reefs were the most colorful in the area. Encrusting sponges and corals covered the big formations with a kaleidoscope of reds, oranges, and yellows. The reefs of Punta Cancun were an unexpected treat.

ISLA MUJERES

Isla Mujeres, the smallest of Mexico's three resort islands, is only four and one-half miles long and one-half mile wide. Although Cancun and Isla are visible from each other and separated by a distance of only four miles, in flavor and atmosphere, they are light years apart. Lacking Cozumel's popularity and Cancun's jet-age image, tiny Isla Mujeres is little more than a sleepy fishing village with only a sprinkling of stores and other buildings to counter its thatched roof character. The island's only other concessions to this century are a few hotels, a small fleet of taxi cabs, and a bevy of rental motorbikes.

Isla Mujeres was discovered by Francisco Hernandez de Cordoba when he sailed west from Cuba in 1517, two years before the first voyage of Cortez. Thus, it is Mexico's Plymouth Rock. With their appetite for gold unappeased by hundreds of clay female figurines found in the tem-

ples dedicated to the Mayan fertility goddess, the Spaniards gave the Island of Women its name and abandoned it to its destiny as a pirate hideout. Today Isla Mujeres' strongest appeal is to the escapist of whatever persuasion, tourist or mainlander, who would be as comfortable sleeping on a beach as in an excellent hotel. For those who would be tempted by this natural and peaceful island with its unspoiled ambience, be advised that Isla Mujeres is also a place where you might as well take off your watch except when you're keeping track of bottom time. The dive boats go out on a daily basis but mostly when things fall together and not necessarily according to a schedule. Hurrying or trying to keep on schedule is considered the great gringo sin, and expecting locals to do so is a lot like hitting your head against a wall; it feels better when you stop.

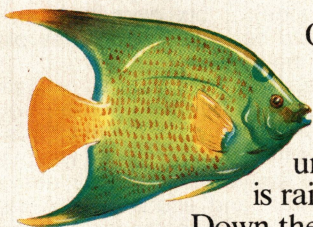
There are three hotels, all on the northern end of the island in or near the village. One is a downtown hotel, the other is a posada or small inn, and the third is a large resort hotel which, although temporarily closed, is scheduled to reopen in the near future. The three dive operations are located in town near the ferry dock and are all within walking distance or a short taxi ride from the hotels. Trip prices are similar to Cozumel if there is a full group of six divers but smaller groups

must share a percentage of the minimum boat fee. Essential gear is available, however, we recommend you bring your own personal gear, BC, and regulator with gauge. Exposure suit requirements are the same as Cancun.

The normal run for the full day two tank trip is to **Los Manchones** reef or the **Little Manchones** towards the southern end of the island. Our first dive there was with Carlos Austin from Cancun. We elected to anchor and dive into the current on the inside of the narrow reef, cross over to the outside and ride the current back to our boat. Los Manchones is probably the best place in the Caribbean to see enormous schools of grunts, chubs, snappers and goatfish. No amount of words and few photographs will convey the spectacle of hordes of silvery fish stacked up like cordwood, swaying to and fro over the reef like one huge liquid organism. You can approach to within a few feet of them and fill a wide-angle mask with wall to wall fish. For our second dive we chose the Little or the Outer Manchones only a few hundred yards away and found similar conditions, with impressive schools of fish hovering over large heads and scattered patches of coral.

The reef known as the **Garrafon** off Playa Garrafon is a shallow near shore formation, lauded by the guidebooks as

FAMOUS WATER COLORS.



Off the Mexican island of Cozumel, one hundred foot visibilities are not unusual. And the underwater scenery is rainbow colorful.

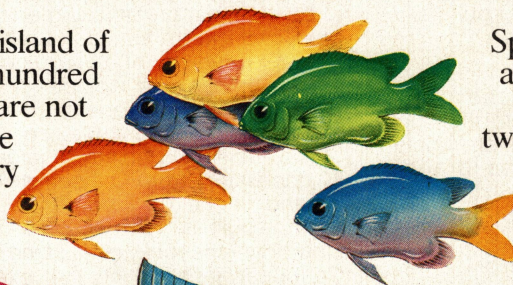
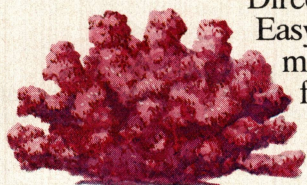
Down the near vertical drop of Palancar Reef spill pink, red and rare black coral.

Exotic sponges. Caverns. Shimmering schools of fish.

Continental Airlines now flies daily to Cozumel. Nonstop flights from Houston.

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Spend four nights at a comfortable Cozumel hotel, two days of diving, two tanks per day, \$139. Or seven nights, four days of diving, \$239.



Prices are per person, double occupancy. Airfare is extra.



Dive in Cozumel. Call your travel agent, dive shop or Continental Airlines.

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CONTINENTAL TO COZUMEL

The Yucatan Has It All.

The Wonder of History. The Delights of Nature.

by Teresa Macri

The Yucatan Peninsula stretches with pride and beauty into the Mexican Caribbean... asserting itself with a vanity that is its due. For under its blue skies and golden sun, caressed by its turquoise seas, it holds a treasure in experiences for the discerning traveler.

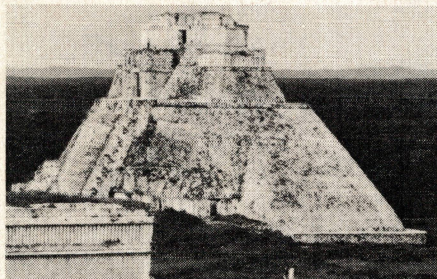
Merida...The Gateway To The Yucatan.

Stately and gracious, Merida is brimming with colonial charm. You'll discover its rich pleasures as you sight-see in an antique horse-drawn carriage past pastel-colored mansions and picturesque parks. The Plaza Maya is the center of social activity with its evening concerts, gentle hubbub, and delightful setting. Don't miss the imposing Montejo Palace... one of the first homes built by the Spaniards in 1549 (and still owned by the original family). The melding of Indian, Spanish and Moorish influence is clear as you browse through the delights of exquisite Merida. You'll see its rich past in iron grillworks, tree-lined plazas, and its grand Cathedral built from the ancient stones of Mayan temples. Open-air cafes, informal gardens and fine restaurants add to Merida's special appeal.

Most hotels here have swimming pools ensconced in tropical settings. Dining can vary from plush and international to Yucatecan specialties such as venison... usually to the strumming of guitars.

The Incredible Mayans

The Dark Ages elsewhere in the world were a Golden Age for the proud Mayans... and testaments to their brilliance flower in the jungles of the Yucatan... majestic cities that rise grandly and unexpectedly throughout the area. The Mayan legacy is one of the great mysteries of archaeology.



Uxmal



Merida



Cancun

Awesome Chichen Itza

About an hour and a half from Merida sprawls this crowning achievement of the incredible Mayan civilization... it's six miles of history magnificently preserved. It was founded by the Itza tribe circa 435 A.D., who erected great temples dedicated to the Plumed Serpent God Kukulcan and other powerful deities.

El Castillo rises to a height of 90 feet and contains a smaller temple with the famed jade-eyed red jaguar. You'll see the Temple of Warriors housing the stone figure of the Mayan Rain God Chac-Mool. You'll see a 200-foot long Ball Court where a type of soccer was played... and where wall carvings depict the fate of the losing team captain. (He lost his head). Don't miss the Astronomer's Observatory... and the Cenote (sacred well) where exquisite artifacts of jade, gold and copper were recovered amidst human bones.

Uxmal...The Gem Of The Yucatan.

This archaeological wonder is easily reached from Merida... and to call it impressive is an understatement. The Pyramid of the Magician soars an imposing 100 feet... and an enormous mask of the Rain God Chac-Mool graces its facade. The corbeled arches of the detailed Nunnery Quadrangle will astound you... and the Governor's Palace is considered by many eminent archaeologists to be the most breathtaking edifice in all pre-Columbian America. Its magnificent facade consists of 20,000 intricately carved stones and includes a fascinating two-headed stone jaguar. Uxmal alone is worth a trip to Mexico.

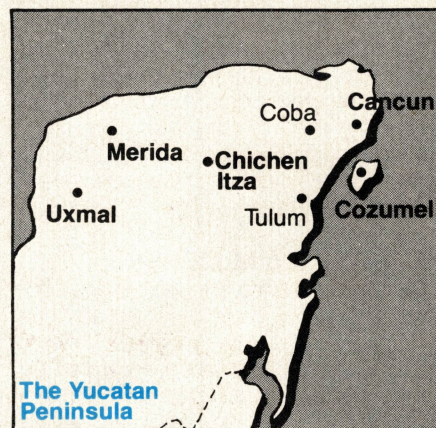
The ancient walled city of Tulum is easily accessible from Cancun or Cozumel... and is the only enclosed city the Mayans built. Its spectacular watchtower looms over the rocky cliffs of the Mexican Caribbean in a setting that excites the imagination.

Nearby Coba is awesome in size... and current excavations are revealing what promises to be one of the area's most striking discoveries.

Cancun...The Paradise Where Mayan Kings Once Played...

...is now the ultimate in modern resorts. It was obviously made in heaven. A lazy lagoon on one side (from three to ten feet deep) is nature's gift to water sports... and offers every kind imaginable. On the Caribbean side are beaches of silky white sand, coral reefs, tropical vegetation and crystal-clear waters in a rainbow of blues and greens. You can walk for miles in pristine serenity.

If you want the challenge of the sea, the waves of Chac-Mool Beach will delight you. Caracol and Tortuga Beaches are ideal if you like swimming in placid tranquility. Snorkeling is idyllic... and



you'll float past fascinating undersea flora and fauna. Fun excursions: the boat ride to unique Isla Mujeres; a visit to Xel-Ha where brilliantly colored tropical fish glide among rocks and grottos; a drive to Akumal—a palm-fringed haven for underwater explorers.

Cancun hotels run the gamut from the extravagant and lavish to the small and delightful. Its spectacular sand and surf, its sparkling starry nights, its peerless golf and tennis facilities and its unlimited water sports are already a mighty magnet to vacationers the world over.

The Cozy Island of Cozumel.

A former First Lady may think she discovered it in the 1960's... but this exquisite tiny island has been delighting visitors for centuries. Even Cortez slept here.

It was once a holy place to which Mayan women were expected to make a pilgrimage at least once. But who could stop after just one visit!

Cozumel is small (33 miles long and 9 miles wide)... but everything an island should be... and its low-key pleasures are bountiful.

Between languorous bouts of loafing on Cozumel's lovely beaches, you'll probably take the Robinson Crusoe cruise to a hidden cove... and watch the crew dive for your lunch. Chances are you'll snorkel and scuba-dive. A more perfect setting than the crystal-clear waters of Cozumel probably doesn't exist. And it's no fish story that sunken Spanish Galleons are awaiting discovery in its indigo blue to emerald to aquamarine sea.

You'll stroll the town Zocalo... maybe rent a bicycle. You'll play tennis, water ski and go deep-sea fishing. You'll probably rent a VW Safari and scout the tropic brush with its legions of bright green parrots. And if you like seafood... well, you may never leave Cozumel.

Mexico's Yucatan is incredible. Come for a week, two weeks, a month. You'll probably want to stay forever.

For further information on the endless pleasures of Mexico's magnificent Yucatan peninsula, clip the coupon on the adjacent page... pronto!

MEXICO...The Amigo Country
Secretaria de Turismo.
Consejo Nacional de Turismo.

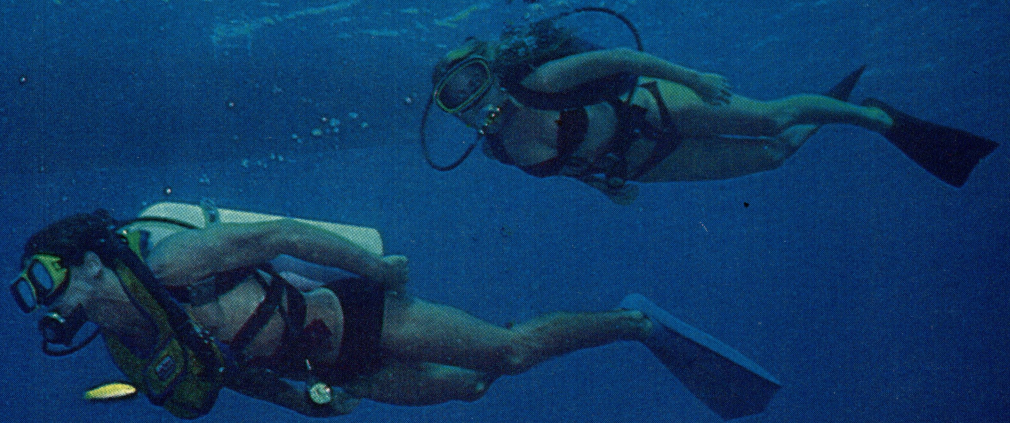
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THE *Amigo* COUNTRY

Cozumel

Secretaria de Turismo • Consejo Nacional de Turismo



At Chancanab Lagoon, Cozumel, the nearest cave is only 25 feet from an easy entry/exit.

"a natural aquarium" and, "one of the most fantastic coral reefs you will ever see." Not long ago this was the location of a giant school of silvery grunts but as a result of the influx of tourist snorkelers, the efforts of local fishermen, and the slap of a recent hurricane, the great school is no more. Although there is still a

school of chub around for the tourists to handfeed, serious divers will find this spot overrated. Playa Garrafon is the best spot to rub elbows with tourists, mainlanders and local members of the suntan cult; however we preferred the less crowded Playa de Coco on the northern end near town. Both beaches

are fine for snorkeling. One-quarter mile south of Playa Garrafon is a lighthouse elevated on a rocky plateau and a few hundred yards beyond, the picturesque remains of a Mayan Temple. We were told by two German divers that there was some good diving just offshore the lighthouse, but the entry looked more suitable for mountain goats.

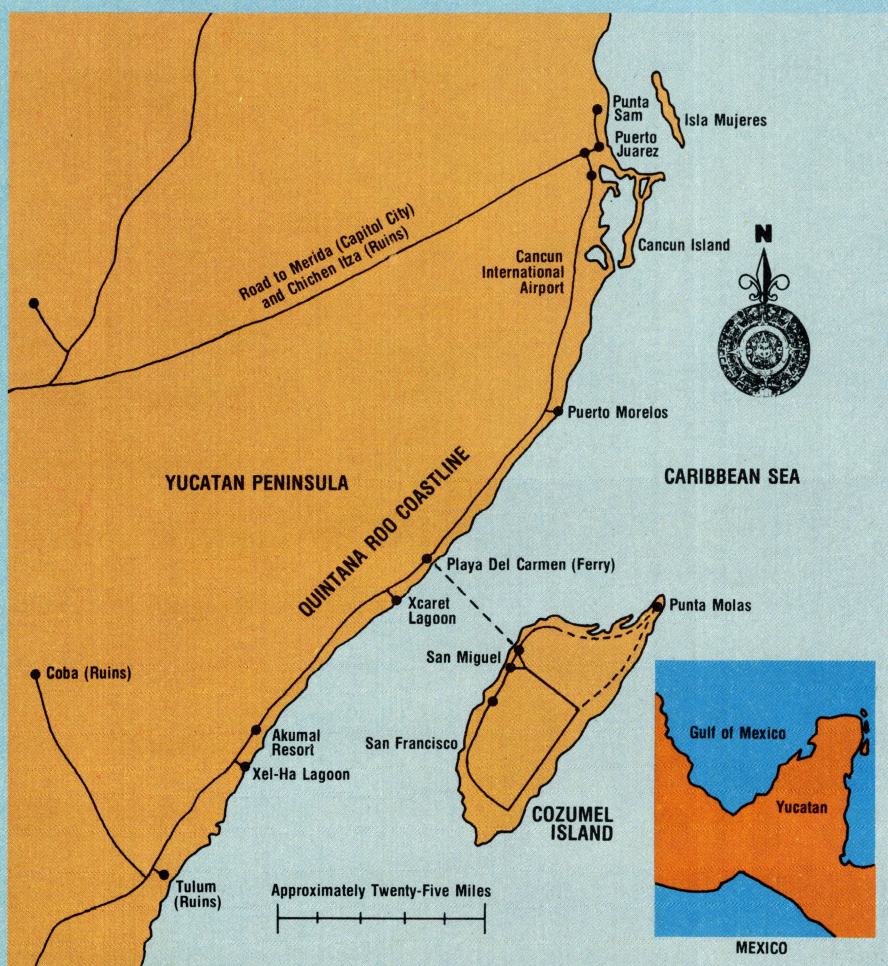
Isla Mujeres is the home of the "sleeping sharks of Yucatan" as featured first by Ramon Bravo on Mexican TV, later by Eugenie Clark in National Geographic and finally by Jacques Cousteau on U.S. television. The sleeping sharks are not sleeping at all but are a species of bull shark that lies on the bottom relying on the steady currents in the area for oxygenation. The caves of the sleeping sharks are a series of ledges and undercuts located about three miles north of the northern end of Isla Mujeres in 60 to 65 feet of water. Gustavo Rodriguez, the athletic owner of Mexico Divers, agreed to take us there personally. Our boat guide was a local lobster fisherman who, without ranges or a compass, skillfully dropped our anchor on the target below.

The first dive on the southern ledges produced encounters with large grouper, big lobster and a huge school of amberjack, convincing us that this side of Isla was indeed a wild place. We found some sleeping sharks, but they were nurse sharks, a common bottom hugging species. The second dive produced more grouper, a school of African pompano, and a six foot bull shark. I gambled he would stay long enough to motion my companion closer and lost. The shark exploded from the bottom and made three fast circles inside the cave before blasting out of the opposite side and disappearing in the blue. I was disappointed that it had not come my way but not very. The shark had moved with such quickness that I would have had to be Luke Skywalker to have gotten a shot with my Nikons.

Later I found out from Ramon Bravo that when he and Eugenie Clark were working on the Geographic piece, they actually found sleeping sharks on a small percentage of their investigative dives. The sharks, like hermits, are skittish with visitors. The more divers that go looking for sleeping sharks the less likely it is that they will be seen. The bottom line is that while you can arrange for a sleeping shark charter, you'll be lucky to see one. Nevertheless, it is a wild area and a lot of fun just to try.

COZUMEL

Cozumel is Mexico's largest Caribbean island, 28 miles long and 11 miles wide. This tropical resort paradise lies 12 miles off the Quintana Roo coast in the path of the Yucatan current. It is tempting to describe Cozumel's resort image as being in between Isla Mujeres and Cancun, but this island marches to the beat of an entirely different drummer. Unlike



her sister islands, the major activity on Cozumel is diving. Even the T-shirts you find here announce that "Cozumel is for Divers."

It has been that way since the early 1960's when SKIN DIVER discovered the majesty of her reefs and clarity of the water to the benefit of the diving public. Recently however, within the last five years, Cozumel has exploded into popularity and the response has been a boom in construction and, in the growth and expansion of dive services. One of the main reasons for this surge of activity has been the general rise in air fares which makes Cozumel's closeness to the continental U.S. a desirable asset. While visitors come from every state, geography and air routes have earned Cozumel the title of Houston Beach with signs in local gift shops informing that "Texan is spoken here."

Divers were not the first group of people to discover the splendors of Cozumel. The ancient Mayans journeyed here by canoe from the mainland and the island became a prime place of sun worship for their priests. Small ruins of many of their temples are still on the island for those who are hardy enough to seek them out. The real name of the island is Cuzamil or Ah-Cuzamil-Peten, a Mayan word meaning place of swallows, probably due to the great numbers of swallows that rested on the island during their long migrations from Florida to Central America. The Mayans also recognized the beauty of the Caribbean Sea along the island's shores when they referred to it as, "the sacred land of the green and blue."

In 1518 the Governor of Cuba, spurred by stories of treasure brought from the Yucatan area the previous year, sent Juan de Grijalva to explore the Quintana Roo coast. In May of that year he became the first Spaniard to discover Cozumel. The following year Cortez used Cozumel as a rendezvous point for his fleet from Cuba sailing for the mainland. Later the island was used as a supply point for Spanish galleons going to Central and South America. Still later, pirates like Henry Morgan and Jean Lafitte found Cozumel's coves a convenient place to hang their cutlasses between cruises.

Today, the swallows have been replaced by tourists. With the exception of a small coconut crop, tourism is the island's one and only industry, and the locals have done a marvelous job of creating the proper mood. Cozumel's resort community is virtually a seaside city. The beach front hotels are stretched out on a narrow 12 mile strip along the western shore. Cozumel has only one town — San Miguel. It covers an area that is only six blocks wide and 20 blocks long and is

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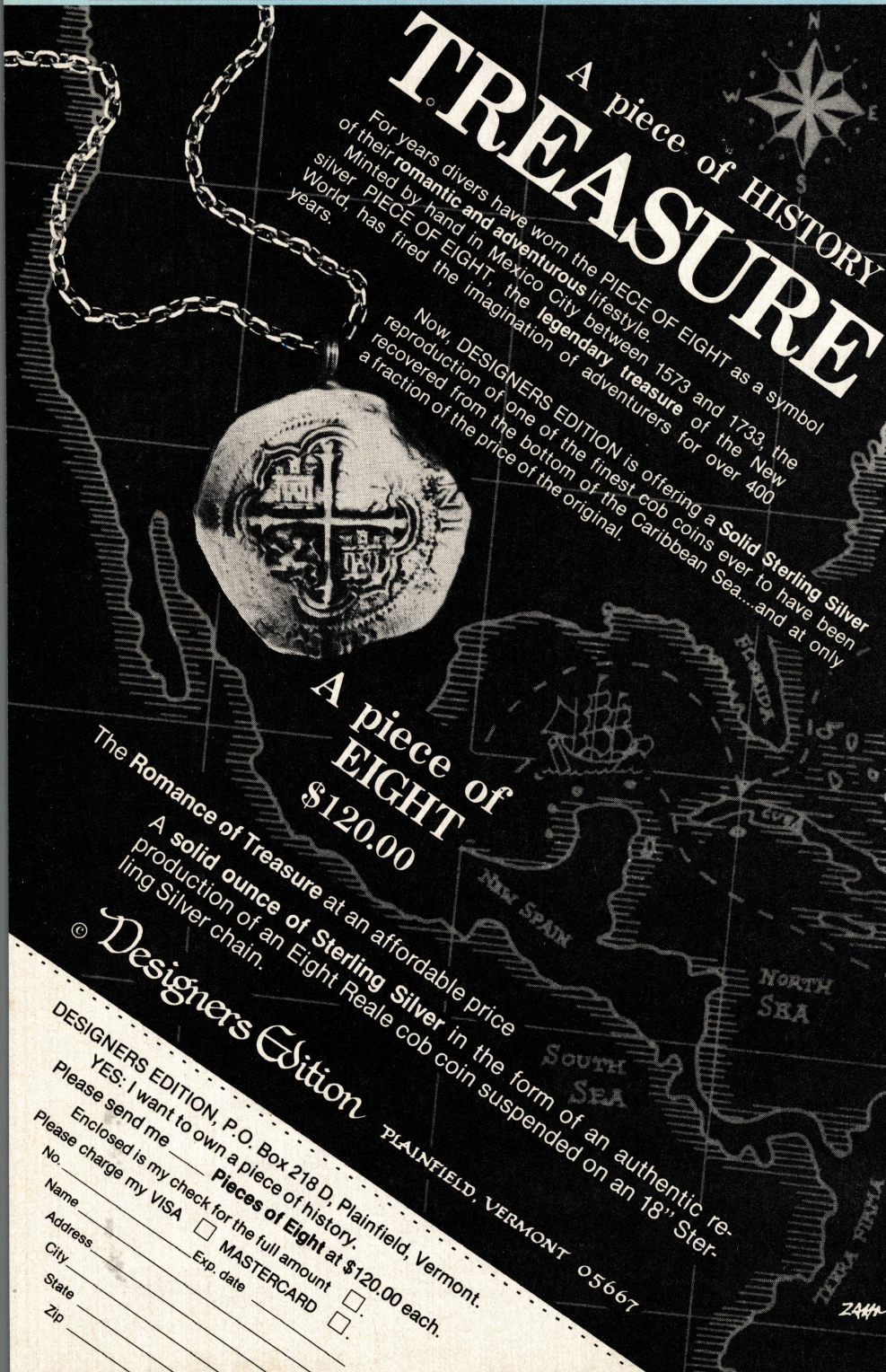
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 P.O. Box 142
 Cozumel, Q. Roo, Mexico
 Phone 20892

packed with a variety of shops, restaurants, markets, commercial hotels and dive stores. The shopping is excellent and features fashionable clothes and impressive works of art as well as standard tourist fare. You can eat at a different restaurant every night of the week and dance at a couple of smashing discos.

The 30 odd hotels can be divided into three zones along the leeward shore of the island. North of San Miguel is an area known as hotel row. It features deluxe beach hotels along famed San Juan beach. All of these hotels offer luxurious settings, large swimming pools, attractive decor and excellent dining. In San Miguel there is a zone of commercial style hotels all within the town limits. These are especially popular because of package prices and accessibility to shopping, dining and dive shops. South of town lies another string of coastal hotels that includes two luxury hotels and three hotels owned and operated by divers and catering to divers; the Barracuda Hotel, Galapago Inn and La Ceiba Hotel. While the southern hotels do not have quite as spectacular a setting as San Juan Beach, they are closer to many of the popular dive sites. Robinson Crusoe picnic cruises can be chartered at most of the major beachside hotels, and are popular with divers and non-divers alike.

The dive operations on Cozumel can be divided into three categories as well. The dive shops in San Miguel are independent of the hotels and provide equipment and charters. They vary from a one-man operation to departmentalized full service dive stores. Many hotels have dive concessions or contracted operators on their grounds to handle the needs of guests. A few of the hotels own their own dive services and operate as a package. The dive boats available range from the traditional wooden Mexican fishing boat, to the popular diver's flattop, to speedy six passenger open runabouts. The boats leave from the hotels, from the town dock, or from the yacht basin. Dive shops may own their own boat and/or charter from a consolidated boat union which operates a fleet of Mexican fishing boats on a rotating basis. The traditional package is a full day, two tank boat trip featuring a drop-off dive in the am, a seafood lunch picnic on San Francisco beach and an afternoon dive on a medium depth reef on the way back to your base. The dive operators can handle single divers or groups of more than 50. With a little searching you can find precisely the plan that fits your needs.

Cozumel is an island of the past, present, and future. You can still enjoy quaint scenery, a cruise on an old fashioned fishing boat, picnic on an uninhabited beach, and dine on local seafood. On the other hand, there are luxury hotels with air conditioning and spacious swimming pools and exciting places to dine and dance. Visitors returning from the 1960's are amazed at the transformation of



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sleepy San Miguel, but this modern Eden's delightful atmosphere, friendly people, and carefree sense of well-being are enduring. The crystal clear sea and the tropical sun cast their spell over modern travelers who continue to hold sacred "the land of the green and blue."

COZUMEL DIVING

I can count on the fingers of one hand the number of places where I have seen the visibility as good as in Cozumel. The clarity of the water here is truly phenomenal and, there are good reasons why. Deep water surrounds Cozumel with no expansive sand flats in the shallows. Here it's land, inside reef, deep reef and then, deep channels that average 6000 feet. The Yucatan current, the seed of the great Gulf Stream, washes the coral shelf with a steady flow of sparkling water, free from inshore turbidity. The so-called rainy season, from May to October, does little to upset the brilliance.



Varied coral formations and yellow vase sponges near the top of Santa Rosa Wall, Cozumel.



Above, the idyllic shore at the El Presidente Hotel, Cozumel. Left, boats await a scuba charter at San Miguel dock, Cozumel.

The sporadic, short lived showers are quickly taken by the flat limestone island with little or no runoff. The result is Cozumel's first equation of visibility: Clear ocean currents plus no river runoff equals dynamite visibility.

The current is also the reason why the reefs are so prolific and healthy. Reefs are made up of colonies of animals that are attached to the bottom. The steady flow of sea water nourishes the reef providing these non-swimmers with optimum amounts of food and oxygen. The coral structures that dominate Cozumel's reefs are the dense, massive colonies of dome corals such as *Montastraea*, *Porites*, *Siderastrea*, and *Solenastrea*. The color and softness is provided by scores of vivid sponges, lacy bryozoans, craggy fans and a variety of encrusting corals.

It is here that drift diving became a popular technique. You can ride the reef from one end to the other without the flick of a fin. When you wish, you can stop for a photograph or a closer look. The current is helpful for picture taking as it quickly takes away any sand that is stirred up.

The dive boat drifts free, ready to pick you up at the end of your sojourn; the Mexican skippers are expert bubble trackers. Most of the time the current is steady from the south, but it sometimes stalls, even reverses in response to the tides. Still water in Cozumel is a rarity and when it happens it's a safe bet that soon it will flow again.

Cozumel does have a few flaws. During the 1960's selfish and unthinking spearfishermen killed many of the large reef fish for sport. They were followed by a wave of collectors who tore out many thousands of black coral trees to make jewelry. Others ripped out the trees just to prove they were deep divers. Today a diver must descend well below 200 feet to find even a small colony of this precious coral. Although the overall majesty of Cozumel's reefs remain unaffected, stringent measures have been taken to see that no further damage will be done. A 20-mile stretch of the best coral reefs, from the international pier in the north to the southern tip of the island, has been declared a national sanctuary by the Mexican Government. Spearfishing, black coral diving, shell collecting or the

removal of any type of marine life is now totally prohibited. In addition, Mexican dive guides have set up fish feeding stations along the reef, and now many of the more popular dive sites are fish havens.

The majority of Cozumel's best reefs are located off the southwest quadrant of the island mostly in the lee of the trade winds. There are literally hundreds of spots to dive and perhaps 25 sites that are named and universally known. The following vignettes feature some of the more popular dive sites and illustrate the diversity of Cozumel diving.

A little less than one mile off the southern end of Cozumel is one of the great wonders of the undersea world. Here at the edge of the offshore shelf overlooking the deep water of the Yucatan channel is the "ultimate" reef — mighty **Palancar**. This massive coral fortress is actually a series of spectacular formations that runs for several miles. The wall is almost vertical, with mountainous towers of coral rising from a sandy slope. Deeply etched in the face of the wall are deep canyons, ravines, crevices, tunnels, and caves.

Recently I returned to Palancar with

Mex-Carib Dive

DIVE OPERATOR	OWNER/MANAGER	PHONE	COMPRESSOR(S)	TANKS	BOAT/CAPACITY	DIVE TRIPS	DEPT. TIME	INSTRUCTION	REPRESENTATIVE
MUNDO MARINO WATER WORLD P.O. Box 166 Cancun, Q. Roo, Mexico	Carlos S. Austin	30554	Mako 15 cfm	65 mixed	29' Phoenix/8 divers 29' Phoenix/8 divers 25' Delta/11 divers 19' Nautique/2 divers	2 tank boat dive 1 tank boat dive 1 tank night dive	9:30 am 2:00 pm 6:00 pm	4 hr. PADI resort course PADI open water certification	Direct
AQUA TOURS, S.A. P.O. Box 528 Cancun, Q. Roo, Mexico	Emmanuel V. Mirabent Beatriz P. S. de Mirabent	30227	Mako 15 cfm Ingersoll-Rand 15 cfm	110 mixed	36' Custom/26 divers 31' Sport-craft/8 divers 31' Sport-craft/8 divers 21' Bayliner/4 divers 19' Angler/4 divers 19' Angler/4 divers 28' ChrisCraft/12 divers	2 tank boat dive 1 tank boat dive 1 tank night dive	9:30 am 2:00 pm 6:00 pm	4 hr. CMAS resort course CMAS, FMAS full certification	Direct
NEPTUNO DIVE SHOP at CLUB VERANO BEAT P.O. Box 67 Cancun, Q. Roo, Mexico	Manuel Baez V. Andres Baez V. Pio Baez V.	30772 30722	Mako 7 cfm	35 aluminum	23' Correct Craft/8 divers 23' Correct Craft/8 divers	2 tank boat dive 1 tank boat dive 1 tank night dive	9:30 am 1:30 pm 6:00 pm	2 1/2 hr. NAUI resort course	Direct
MEXICO DIVERS Rueda Medina Isia Mujeres, Q. Roo, Mex.	Gustavo Rodriguez	20131	Mako 9.2 cfm	60 aluminum	25' Custom/15 divers	1 tank boat dive	10:00 am	1 hr. resort course	Direct
AQUA MUNDO Isia Mujeres, Q. Roo, Mex.	Luis Fernando Ramirez Ramiro Eduardo Ramirez	None	Located downtown	20 aluminum	33' Motorsailer/20 divers 33' Motorsailer/20 divers 33' Motorsailer/20 divers	1 tank boat dive 2 tank boat dive 1 tank boat dive	7:30 am 8:00 am 10:00 am	1 hr. resort course	Direct
EL CARON Isia Mujeres, Q. Roo, Mex.	José Magaña Castro	20060	Mako 9.2 cfm Mako 9.2 cfm	50 steel	25' Zena/6 divers	1 tank boat dive 1 tank boat dive	7:00 am 9:00 am	1 hr. resort course	Direct
EL CLAVADO P.O. Box 291 Cozumel, Q. Roo, Mex.	William (Memo) Estenger	None	Located downtown	47 steel	23' Robalo/6 divers	1 tank boat dive 1 tank boat dive 1 tank boat dive 2:00 pm Beach dive 1 tank night dive	10:00 am 12:00 noon 2:00 pm Anytime 7:30 pm	PADI resort course PADI full certification courses	Direct
FANTASIA MARINA, S.A. at Sol Caribe P.O. Box 176 Cozumel, Q. Roo, Mex.	Eduardo Lopez-Negrete Gabriel Nayar	20725	Worthington 20 cfm	110 mixed	34' Flattop/24 divers 25' Custom/10 divers 14' Custom/3 divers	2 tank boat dive lunch included 1 tank boat dive 1 tank night dive	10:00 am 9:00-12:00-3:00 7:00 pm	3 hr. CMAS resort course	Divers Unlimited 6023 Hollywood Blvd. Hollywood, FL 33024 (305) 981-0156
FANTASIA MARINA, S.A. at Mayan Playa P.O. Box 176 Cozumel, Q. Roo, Mex.	Eduardo Lopez-Negrete Gabriel Nayar	20725	At downtown location	15 aluminum	At downtown and Sol Caribe	2 tank boat dive lunch included 1 tank boat dive 1 tank night dive	10:00 am 9:00-12:00-3:00 7:00 pm	3 hr. CMAS resort course	Divers Unlimited 6023 Hollywood Blvd. Hollywood, FL 33024 (305) 981-0156
FANTASIA MARINA, S.A. at Cabanas del Caribe P.O. Box 176 Cozumel, Q. Roo, Mex.	Eduardo Lopez-Negrete Gabriel Nayar	20725	At downtown location	15 aluminum	At downtown and Sol Caribe locations	2 tank boat dive lunch included 1 tank boat dive 1 tank night dive	10:00 am 9:00-12:00-3:00 7:00 pm	3 hr. CMAS resort course	Divers Unlimited 6023 Hollywood Blvd. Hollywood, FL 33024 (305) 981-0156
FANTASIA MARINA, S.A. at Cantarell Hotel P.O. Box 176 Cozumel, Q. Roo, Mex.	Eduardo Lopez-Negrete Gabriel Nayar	20725	At downtown location	15 aluminum	At downtown and Sol Caribe locations	2 tank boat dive lunch included 1 tank boat dive 1 tank night dive	10:00 am 9:00-12:00-3:00 7:00 pm	3 hr. CMAS resort dive	Divers Unlimited 6023 Hollywood Blvd. Hollywood, FL 33024 (305) 981-0156
FANTASIA MARINA, S.A. Downtown store Ave. Rafael E. Melgar So. (across street from Post Office) Cozumel, Q. Roo, Mex.	Eduardo Lopez-Negrete Gabriel Nayar	20725	Mako 15 cfm	95 mixed	31' Phoenix/10 divers	2 tank boat dive lunch included 1 tank boat dive 1 tank night dive	10:00 am 9:00-12:00-3:00 7:00 pm	3 hr. CMAS resort course	Divers Unlimited 6023 Hollywood Blvd. Hollywood, FL 33024 (305) 981-0156
DIVE COZUMEL Barracuda Hotel Ave. Rafael E. Melgar P.O. Box 163 Cozumel, Q. Roo, Mex.	Carlos Sierra	20002	Worthington 20 cfm Worthington 20 cfm	150 aluminum	35' Motorsailer/15 divers 24' Hydrodyne/8 divers	2 tank, 1/2 day boat dive 2 tank full day boat dive lunch included 2 tank, 1/2 day boat dive lunch included 1 tank night dive	8:00 am 9:30 am 1:00 pm 7:30 pm	3 hr. PADI/NAUI resort course PADI/NAUI full cert. course	International Scuba Ventures (713) 477-0236 (800) 231-9707 Underwater Connection (713) 663-7777 (800) 231-3366
VIAJES Y DEPORTES DEL CARIBE El Presidente Hotel South Coastal Rd. P.O. Box 72 Cozumel, Q. Roo, Mex.	Martha Sempere	20322 20290	Mako 9.2 cfm	60 mixed	27' Motorsailer/15 divers	1 tank boat dive 2 tank boat dive lunch included 2 tank afternoon and night dive	10:00 am 10:00 am 2:00 pm	2 hr. resort course	Direct
SCUBA COZUMEL Ave. R. Melgar #13 Cozumel, Q. Roo, Mex.	Pedro Delgadillo Tim Massimino	20627	Located at the Galapago Inn	Located at the Galapago Inn	Located at the Galapago Inn	1 tank boat dive 1 tank boat dive 1 tank boat dive 1 tank boat dive 1 tank night dive	7:00 am 11:00 am 1:30 pm 3:00 pm 7:00 pm	1 day PADI resort course, lunch included PADI full certification course	Direct
GALAPAGO INN South Coastal Road K 1.5 P.O. Box 289	Marta Ambros Pedro Delgadillo	20663	Worthington 12 cfm Worthington 20 cfm	150 steel	34' Flattop/20 divers 22' Aquasport/8 divers 14' Glassbottom/4 divers	1 tank boat dive 1 tank boat dive 1 tank boat dive 1 tank boat dive	7:00 am 11:00 am 1:30 pm 7:00 pm	1 day PADI resort course, lunch included PADI full certification course	Direct

Operators

Cozumel, Q. Roo, Mex.									
DISCOVER COZUMEL Ave. Rafael E. Melgar P.O. Box 75 Cozumel, Q. Roo, Mex.	Ernesto Vera Kentzler	20280	Ingersoll-Rand 18 cfm Mako 9.2 cfm	150 aluminum	30' Motorsailer/14 divers 23' Mako/10 divers 23' Mako/10 divers	1 tank boat dive 1 tank night dive 2 tank boat dive w/lunch 2 tank boat dive w/lunch 1 tank boat dive w/lunch 1 tank night dive	9:00 am 7:00 pm 9:00 am 9:30 am 10:30 am 4:00 pm 7:00 pm	3 1/2 hr. NASDS resort course PADI full certification course	William Cheesman 90406 Shadow Dr. Springfield, OR 97477 (503) 726-8879
DEPORTES ACUATICOS R. Melgar y Calle 8 N Cozumel, Q. Roo, Mex.	Damian Piza Sergio Sandoval	20640	Mako 9.2 cfm Mako 9.2 cfm	60 aluminum	23' Motorsailer/5 divers 28' Yamaha/7 divers 28' Yamaha/7 divers	1 tank boat dive 2 tank boat dive lunch included 1 tank night dive	8:00 am 10:00 am 7:30 pm	2 1/2 hr. CMAS resort course	Sportmen Tours, Inc. P.O. Box 57012 Miami, FL 33157 (305) 253-4391
DISCOVER COZUMEL Chancanab Lagoon South Coastal Road Cozumel, Q. Roo, Mex.	Ernesto Vera Kentzler	None	Located at Discover Cozumel in town	25 aluminum	Beach dives only	1 tank beach dive	Anytime 9:30-4:00	3 1/2 hr. NASDS resort course	William Cheesman 90406 Shadow Dr. Springfield, OR 97477 (503) 726-8879
VILLABLANCA BEACH CLUB South Coastal Road P.O. Box 230 Cozumel, Q. Roo, Mex.	Memo Arana	20730	Mako 5 cfm	25 aluminum	36' Motorsailer/15 divers 18' Mako/6 divers	1 tank boat dive 2 tank boat dive lunch included	Anytime 9:30 am	1 day PADI resort course, lunch included	Direct
LA CEIBA HOTEL South Coastal Road P.O. Box 284 Cozumel, Q. Roo, Mex.	Pancho Morales	20379	Mako 15 cfm	100 aluminum	22' Custom/8 divers	1 tank boat dive 2 tank boat dive 1 tank night dive	9:30 am 9:30 am 8:00 pm	3 hr. PADI resort course PADI full certification course	Direct
AQUA SAFARI Ave. R. Melgar #401 P.O. Box 41 Cozumel, Q. Roo, Mex.	Dick Tompkins	20661 20101	Worthington 15 cfm Worthington 15 cfm	219 aluminum	32' Motorsailer/12 divers	2 tank boat dive lunch included	9:30 am	4 hr. PADI resort course	Underwater Connection 4900 Bissonnet, Ste. 206 Belair, TX 77401 (713) 663-7777 (800) 231-3366
AQUA SAFARI CHANCANAB Chancanab Lagoon South Coastal Road Cozumel, Q. Roo, Mex.	Ramon Zapata	None	Located at Aqua Safari in town	30 aluminum	Beach dives only	1 tank beach dive with all gear	Anytime 10:30 am-4:00 pm	4 hr. PADI resort course	Underwater Connection 4900 Bissonnet, Ste. 206 Belair, TX 77401 (713) 663-7777 (800) 231-3366
ADVENTURAS TROPICALES Ave. R. Melgar P.O. Box 34 Cozumel, Q. Roo, Mex.	Julio Blanco P.	20393	Worthington 12 cfm	71 steel	36' Motorsailer/15 divers	2 tank boat dive lunch included 1 tank night dive	9:30 am 7:30 pm	3 hr. resort course	Direct
SCUBA ADVENTURES INT'L. P.O. Box 10 Cozumel, Q. Roo, Mex.	Mary Mykolyk	20729	Poseidon 2.7 cfm U.S. Divers 2.7 cfm (portables)	30 mixed	Custom dive tours at Cozumel and Quintana Roo coast	Custom dive trips	By appt. only	8 hr. NAUI resort course with beach or boat dive	Louise Mykolyk de Brown 2203 Palmer Ave. New Orleans, LA 70118 (601) 928-4703
PLACER SAFARI DIVE CLUB Chinchero Reef Placer, Q. Roo, Mex.	Corporation	None	Poseidon 2.7 cfm U.S. Divers 2.7 cfm (portables)	20 aluminum	20' Canoe/7 divers 16' Canoe/4 divers	Custom dive trips	By appt. only	8 hr. NAUI resort course with beach or boat dive	Gerald Hendricks Vista Energy P.O. Box 53755 Lafayette, LA 70505 (318) 981-0843
MOLCAS HOTEL Playa del Carmen Q. Roo, Mexico	Joaquin Corrales	None	Mako 9.2 cfm	25 aluminum	18' Boston Whaler/6 divers 24' Boston Whaler/6 divers 35' Zena/12 divers 28' Motorsailer/10 divers	2 tank boat dive 1 tank boat dive 1 tank night dive	9:00 am 9:00 am 7:00 pm	3 hr. resort course	Hotel Molcas Calle 60 No. 469 Merida, Yucatan, Mexico (992) 30439 Tele: 075 876
CUEVA PARGO DIVE SHOP Playa del Carmen Q. Roo, Mexico	Joaquin Corrales	None	Located at Hotel Molcas	At Hotel Molcas	At Hotel Molcas	2 tank boat dive 1 tank boat dive 1 tank night dive	9:00 am 9:00 am 7:00 pm	3 hr. resort course	Cueva Pargo P.O. Box 552 Cancun, Q. Roo, Mexico
CABANAS CAPITAN LAFITTE Km. 60 Carretera Cancun-Tulum Punta Bete, Q. Roo, Mexico	Jorge Fuentes Gomez	None	Located in Playa del Carmen	10 aluminum	16' SeaKing/6 divers 14' Zena/5 divers	By appointment	By appt.	3 hr. resort courses (Spanish-speaking)	Cabanias Capitan Lafitte Jaime Luocke F. Calle 58 N. 471 P.O. Box 1463 Merida, Q. Roo, Mexico (992) 16114 Tele: 75737
OJO DE AGUA Puerto Morelos, Q. Roo, Mex.	Emilio Munoz Fernando Cusi	None	Mako 9.2 cfm	45 steel	21' Lina/12 divers 21' Lina/12 divers	1 or 2 tank boat dive 1 or 2 tank boat dive 1 tank night dive	8:00 am 2:30 pm 7:00 pm	4 hr. resort course	Ojo de Agua P.O. Box 1281 Merida, Yucatan, Mexico (992) 70100
HOTEL AKUMAL CARIBE Akumal, Q. Roo, Mexico	Jorge Serrano Becerra	None	Windjammer 12 cfm	25 aluminum	23' Fiberglass/8 divers 30' Custom/12 divers 12' Glassbottom/6 divers 23' Fiberglass/8 divers	1 or 2 tank boat dive 1 or 2 tank boat dive	9:30 am 2:30 pm	Resort course	D.E.C. International, Inc. P.O. Box 91003 Houston, TX 77088 (800) 231-0228 Nat'l toll free (800) 392-6357 Tex. toll free (713) 820-3210

Cozumel

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Rita Sheese, a Cozumel resident who is a photographer, assistant and model to Ramon Bravo's television and film productions. We were aboard Fantasia Marina's speedy little runabout and had selected a popular area of Palancar called the Horseshoe for our first dive. I had not been to Palancar for several years and wondered if it would still be as impressive. I entered the water and swam ahead of Rita over a series of large, closely packed coral heads which form a horseshoe shape on the sandy bottom. The top of the reef adjacent to the drop-off was only 30 feet deep. I dropped over the edge of the wall to a depth of 90 feet and back peddled out into the deep blue of the abyss to gain perspective. If reefs were rated according to their proportions, Palancar would be a 10. The incredible awe-inspiring scenery looked like a view of a forbidden planet. Standing over the dizzy precipice were huge blocks of coral weighing hundreds of tons and soaring 80 feet up. Wide, sweeping sand channels separated the monster formations and pointed toward the abyss below. I looked up at the face of the wall and at Rita silhouetted by the sun in splendid clear water. I felt small and insignificant in the shadow of this magnificent reef and at the same time privileged to be here — there is hardly a thrill in the underwater world to compare. Mighty Palancar had cast her spell.

Santa Rosa is perhaps the prettiest drop-off in Cozumel. It is located a short distance north of Palancar and while it is not quite as large as its famous neighbor, it is fishier and more colorful. Umberto, our guide from Aqua Safari in San Miguel, led our dive and carried a plastic bag of cut-up mackerel that he would use to show us some of Cozumel's big fish. Santa Rosa is almost always a drift dive. At 70 feet we were on top of the coral ridge and gave ourselves to the current to ride along the edge of the reef. The visibility was about 100 feet and the low ridge soon became an amazing series of popcorn-shaped heads riddled with caves and ledges. A large 60 or 70 pound black grouper appeared and then another. Soon there were half a dozen big grouper and a couple of 30 pound jacks watching for Umberto's handouts. Occasionally, you could reach out and touch them. In addition to grouper and jack, large cubera snapper, amberjack and eagle rays will appear on occasion and once in a while a shark. After the big fish had finished their meal, I had time to concentrate on the reef itself. There was something peculiar here, something that made Santa Rosa stand out. Visually separating the warm colors displayed in the wide variety of tube, elephant and finger sponges that decorated the ledges and overhangs, I realized that the most prominent color was orange. I have never seen a reef displaying this much orange before. If you are looking for a colorful drop-off and big fish, you should see



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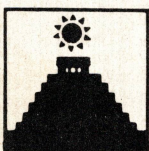
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what is happening at Santa Rosa.

For those who do not like boat rides, one of the best bets in Cozumel is the service from San Francisco beach provided by Ernesto Vera's 22 foot Mako. Small groups are picked up on the beach for a short trip to the southern reefs. We used this diver shuttle service for a 45 second ride to **San Francisco Reef**, one-half mile from shore. We entered the water and drifted while the boat circled above. San Francisco is an outside reef which runs parallel to shore. The formations, in 45-55 feet of water, are similar to Santa Rosa but not quite so large. The visibility was about 80 feet and we could see several large schools of grunts along the colorful reef slope. San Francisco, like most of Cozumel's reefs, displays a prominence of red, yellow, pink and orange hues. The reef is filled with active and playful fish and its mid-depths provide good bottom time. San Francisco has most everything you want to see on a coral reef and who could ask for a shorter boat ride?

Yocab is a great spot for a second dive on the way back from any of the deep southern reefs. It's an inside reef a short distance north of San Francisco in only 35 feet of water. The first time I dived here we were aboard Aqua Safaris' comfortable 32 foot motorsailer on the way back from Santa Rosa. Yocab is a dense, low profile reef almost 500 yards long. For those who are not used to current diving this is a good place to start. The slight current was just enough to keep us moving along the reef and yet we could easily stop whenever we wanted to. Yocab is well known for its reef fish and friendly queen angels. Here I did the majority of my close-up and fish photography. For those who enjoy a closer association with the reef, Yocab is hard to beat.

Paraiso is my work horse reef for general photography. Located just south of the international pier, close to the southern hotels, Paraiso is actually two reefs separated by a sand flat. The depths average 50 feet and with the exception of a few large heads mostly around the edges of the reef, it is a rather low profile system. The general appearance is not that impressive. On Paraiso, it is the detail that counts. My most recent trip there was aboard a 21 foot open dive boat operated by Carlos Sierra's Hotel Barracuda. By now I had made a half dozen dives on Paraiso and knew the reef well. George, our divemaster, knew it better. I was taking photographs of a prominent coral head nicely decorated with seafans when George approached with a chum bag. I had watched fish feeding on Paraiso before but I was about to see a new trick. Jeanette, my dive partner began to feed a scrawled filefish while George dropped a few pieces of chum into a crevice in the reef. Suddenly a spotted moray appeared and then two. The first eel came completely out of the coral and chased Jeanette 50 feet down the reef.

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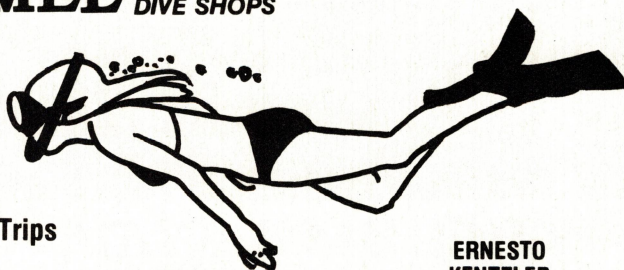
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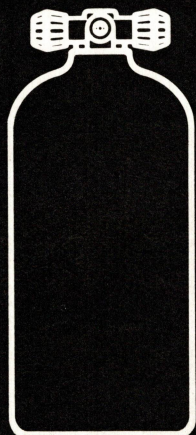
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George and I laughed so hard our face-masks flooded. Soon the reef was alive with spotted morays. The little coral head became a writhing medusa. I counted ten eels. Jeanette and I looked bug-eyed at each other. I thought George was going to laugh himself into an embolism — just another day on Paraiso.

One of my favorite snorkeling reefs in Cozumel has a most unusual setting reminiscent of the coves on the Yucatan mainland. **Chancanab Caves** is a fascinating series of deep ledges and caves along the shoreline at Chancanab Lagoon. There are ladders and steps out into the rocky shore which allow a convenient entry/exit point and you are only 25 feet from the nearest cave, cut back under the shore. I was there recently, visiting Memo Estenger of the El Clavado shop at the lagoon. (There are several shops here that provide equipment, instruction and guided trips.) The first cave, closest to the entry point, usually has a school of grunts swimming outside and photographers will like to get inside and shoot silhouettes of the fish or other divers at the cave entrance. Chancanab heads, out in front of the cave, is a series of low profile dome corals which includes one head with a small statuette of the Virgin Mary. A replica of the statuette can be found above water on the beach at the Hotel Akumal on the mainland. A mixed school of striped and white grunts is always around this area. Visibility is quite often 80 feet or more; quite beautiful for a spot right offshore. Further offshore in 35-45 feet of water is **Outer Chancanab**, an interesting mid reef dive which is an excellent spot for night diving. There you can find basket stars and huge pufferfish. My interest on this dive was to photograph the cave 100 yards south of the lagoon entrance. At the cave I found an infinite school of silvery pilchards which moved like a cloud of quicksilver, flashing in the sunlit shallows. I could move through them and they would surround me without touching. When they swam overhead, they blocked out the sun. The resulting photos looked like a million streaks of silver.

THE MAYAN MYSTIQUE

The word Yucatan quickly brings to mind visions of Mayan ruins, and indeed, there are hundreds of sites on the peninsula. These vary from the remains of great cities like Chichen Itza, Uxmal, Tulum and Coba, to small temples covered with tangled vegetation and jungle growth. The Mayans were an advanced civilization that flourished in Mexico and Central America while Europe was still struggling in the dark ages. The height of their progress was realized from 300 to 900 A.D. They were an artistic, intelligent and creative people who reached their golden age and vanished mysteriously before the arrival of the Spanish conquerors. Their greatest achievements were in mathematics, science, astron-

omy and architecture. They built great temples and pyramids as grand as the Egyptians, designed a calendar more accurate than the one we use today and created a written language that has not yet been fully deciphered. Although at one time many millions of Mayans inhabited the peninsula, no one knows for sure where they came from and experts disagree on the reasons for their downfall.

If you are visiting the mainland or the islands of the Mexican Caribbean, you cannot help developing an interest in the fascinating world of the Mayans. Although one site cannot be held more important or said to have more impact than another, the best bet is the day trip to the cities of Tulum or Chichen Itza. Most hotels sponsor excursions daily or at least twice weekly. The Tulum trip includes lunch and a snorkeling excursion to Xel-ha Lagoon. Here is a rundown on mainland attractions from Cancun south to Tulum.

Puerto Moreles: A small fishing village 20 miles from Cancun. It has a few hotels and restaurants and boat rentals for fishing or snorkeling. Diving services are available. There is a ferryboat that goes to and from Cozumel.

Playa del Carmen: A fishing village 45 miles from Cancun and since prehispanic times a point of departure by boat to Cozumel. There are a few hotels and restaurants, a dive shop and a one-man dive service.

Xcaret: Just four and one-half miles south of Playa del Carmen is one of the most beautiful natural coves in the area. Xcaret was used by the ancient Mayans as a port and there are some ruins visible at the site. The view at the cove is breathtaking.

Paamul: Sixty miles south of Cancun, Paamul is a scenic cove similar to Xcaret which is suitable for snorkeling and exploring.

Akumal: A beautiful beach resort hidden by palm trees with a classic Caribbean cove. There is a restaurant beach bar and a dive service which is available by appointment only.

Xel-ha: This is a large recreation and picnic area which is designed around a beautiful rocky lagoon. There is a labyrinth of caverns under the water and hundreds of tropical fish. There are facilities for swimming and snorkeling only.

Tulum: One of the few walled cities of the vast Mayan Empire, Tulum is located 105 miles from Cancun. While Chichen Itza is a more extensive series of buildings, nothing can compare to Tulum's dramatic location on a cliff overlooking the Caribbean Sea.

Coba: This is the opportunity to see a comparatively unpublicized Mayan site which has only recently become accessible. It has been estimated that this may be the largest site in Mexico and most of the buildings are still buried in the jungle. Hiking shoes and jeans are recommended.

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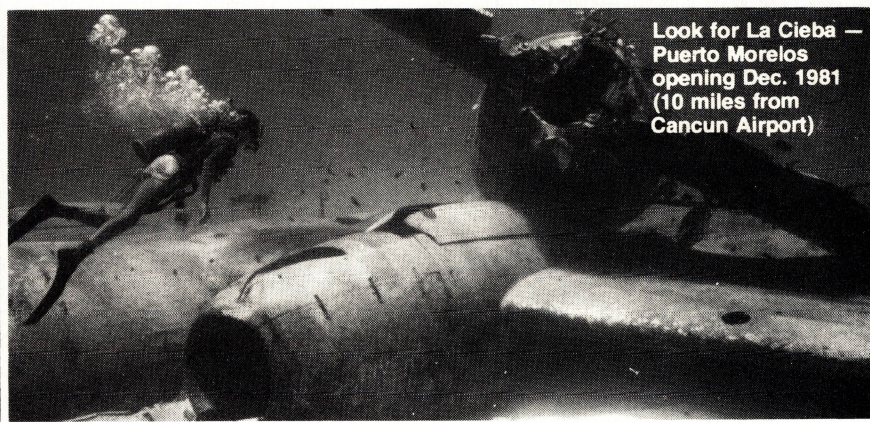
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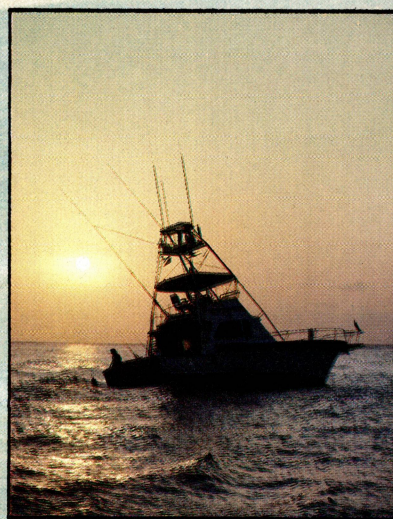
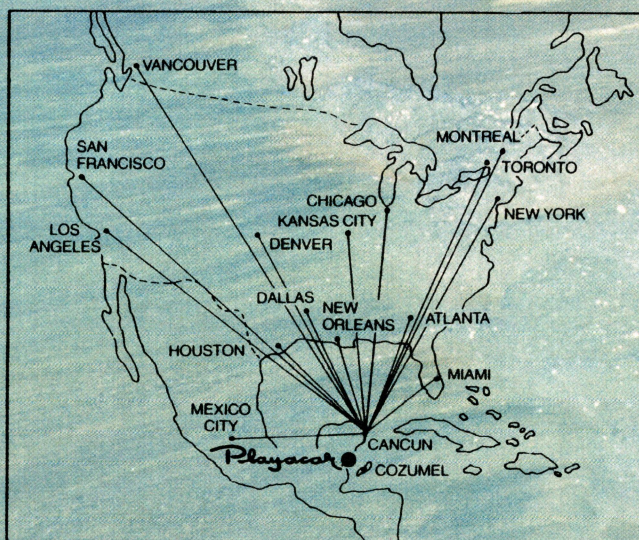
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SECTION

We could see Raymond's powerful movie light a good distance away. He and John were the only two of our group willing to make this last dive on New Year's Eve. The rest of us had been worn out by the three previous dives and our resolve had been further weakened by the delicious dinner of tenderloin and Mike's rum punch. At midnight we sent up flares and resolved to do more night diving in the future. This day had been the highlight of our trip aboard the *Cayman Diver* . . .

Karl and I had spent a most enjoyable week aboard the *Cayman Diver* earlier in 1980 and although the boat had changed hands we anticipated the same excellent experience on our current trip that we had enjoyed as guests of Captain Paul Humann. We were not to be disappointed.

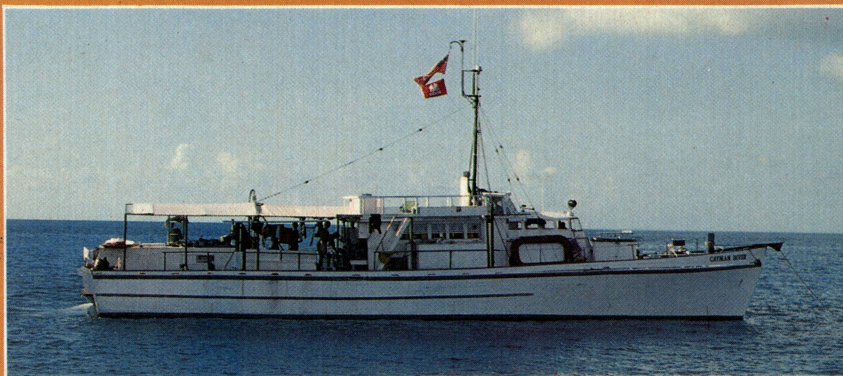
The new captain of the *Cayman Diver*, Jerry Jones, met us at the airport on Grand Cayman and, after a cab ride to the South Sound, we boarded our vessel and met the remaining members of our group.

Our crew consisted of Captain Jerry Jones, Scott, Dudley, Mike and Brent. Also present were Jan and John Novack, co-owners with Jerry of the *Cayman Diver*.

After the introductions we went below decks to select our sleeping quarters. There are three double cabins aboard and one spacious six berth cabin. Other facilities include a shower and two heads with electric flush toilets. Most of the guests lost no time in diving into the clear, warm Grand Cayman water for a brief snorkel before dinner.

At dinner time, Jerry proved to be an excellent cook — very adept at using the newly installed "hasty bake" (similar to a closed-in barbecue stove).

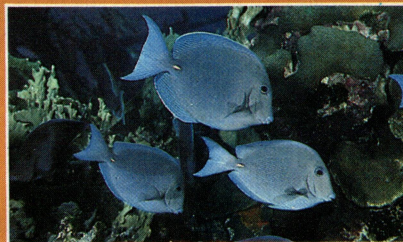
The following morning, after a hearty breakfast of bacon and eggs, we made our first dive in the South Sound. The coral formations at South Sound begin at a depth of about 30



photo/Paul J. Tzimoulis

M/V CAYMAN DIVER A Floating Dive Resort

By Jill M. Wallin

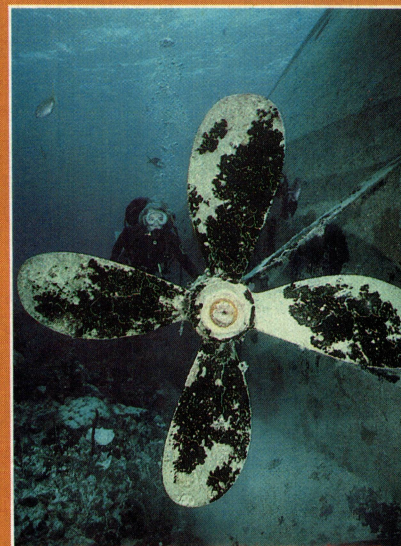


photo/Jill M. Wallin

feet. The large structures are separated by sandy channels which cut an additional 20 feet down. These channels run out to a steep drop-off. We swam down to the top of a coral head at about 45 feet and were greeted by schools of beautiful blue and brown surgeonfish. On the reef around us were colorful soft corals gently swaying back and forth.

We decided to conserve our bottom time by staying shallow. This would allow us more time to photograph the prolific marine life. The fish in the area included a jolthead porgy, goatfish, tobaccofish, harlequin bass and tilefish. Large heads of brain coral presented many tubeworms for macro photos.

As we ascended the ladder back




photo/Karl I. Wallin

into the boat, crew member Mike helped us with our tanks and heavy camera rigs. I liked this aspect of the cruise — let the crew handle the heavy gear on board, I'll handle it underwater.

The *Cayman Diver* has a large carpet covered platform in the stern where guests may keep their camera equipment. This platform is a short step from the dive ladder and thus a diver can come up, change film and return to the water in minutes.

After dinner on our first day of diving, some of the members of the



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group made a night dive. The rest of us relaxed on the forward deck while Mike played his guitar. Mike also makes a mean bloody Mary, in the Paul Humann tradition with lots of horseradish.

The following day we made a pre-breakfast dive at the Twin Sisters. It was barely light as we entered the water and we surprised several sleepy fish near the lip of the wall at about 60 feet. We continued down the wall to 110 feet, lighting up masses of intricate gorgonian corals and red rope sponges with our lights. I photographed a trumpetfish as it dozed in a clump of soft finger coral. The fish just didn't seem to mind how close I came. This is an advantage of diving from your own floating resort — the early bird catches the fish.

After our dive at the Twin Sisters we continued cruising along the south coast of Grand Cayman until we could see the first of two large rusty shipwrecks. This wreck was lying on its side close to shore. Beyond this huge hulk we could see large breakers at the beginning of the east coast — indicating rough seas ahead if we continued. We therefore decided to make a dive right where we were (about parallel to "Old Isaacs").

These shallow waters have magnificent elkhorn coral formations which shelter an incredible array of sea life. It was here that we found we could get unusually close to the wary black durgon, normally a difficult fish to photograph. Among some of the elkhorn corals we found an abundance of blue and green algae. Looking closer we noticed a dainty lettuce nudibranch; incredibly well camouflaged to match the blue algae. This area also features numerous flamingo tongues. These little mollusks add their touch of color to the chromatic patchwork of the surrounding reef. While cruising through the sandy channels between the elkhorn formations we would often encounter groupers hiding under the ledges.

We made three dives during the day near Old Isaacs and since it was New Year's Eve some of us decided to forego the evening dive and enjoy the festivities. Raymond and John did make the dive, and as with other night dives, were rewarded by an exhibition of magnificent marine creatures not normally found during the day. On his many night dives during the trip, Raymond observed squid, stingrays, various nocturnal crabs and shrimp and even a small puffer obliged him by fitting into the macro attachment on his movie camera.

(Continued on Page 92)



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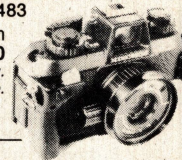
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Microsemiconductor Corporation of
Santa Ana, CA, has entered into an
agreement to acquire Sound-Wave Sys-
tems, Inc., of Costa Mesa, CA. Micro-
semiconductor plans to merge Sound-
Wave Systems with its commercial prod-
ucts division to create a new company,
Microcommunications.

The commercial products division of
Microsemiconductor Corp. manufac-
tures and markets a line of high reliability
telephone dials, keyswitches and other
related telecommunications products.

Sound-Wave Systems manufactures
and markets underwater wireless com-
munications equipment, the best known
of which is Wet Phone. The firm also has a
complete line of sonic pool alarms, over-
board alert devices and other related
aquatic safety equipment.

"The acquisition of Sound-Wave Sys-
tems by us," said Paul Quinn, general
manager of the commercial products di-
vision of Microsemiconductor, "was a
logical step. The resulting new subsid-
iary, Microcommunications, will be a dy-
namic new part of our company."

"The combined talents of the two firms
creates a potent new company with
strong engineering skills, proven man-
agement and dedication to innovative
new product development."

The parent company, Microsemicon-
ductor Corp., is an established leader in
semiconductor manufacturing with cor-
porate headquarters at 2830 S. Fairview
St., Santa Ana, CA. The new subsidiary,
Microcommunications, will be housed in
the present Sound-Wave Systems head-
quarters, 3001 Red Hill Ave., Building 1,
Suite 102, Costa Mesa, CA 92626; (714)
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St. Thomas

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Dive the ocean pinnacles of SAIL ROCK. Enjoy the breathtaking beauty of FRENCHCAP CAY. Explore the stone tunnels of THATCH CAY. Visit our many shipwrecks, coral reefs, offshore islands and coral caves. A whole world of undersea adventure awaits you.

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St. Thomas Diving Club is the new home of the Jim & Cathy Church U/W Photo School. Weekly classes starting June 3rd and running all summer. Learn from the experts who wrote the book!



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St. Thomas Diving Club

An Exciting Dive Vacation
Concept For The Virgin Islands

Text and Photography by Geri Murphy

The rumbling engines of *Diver I* suddenly cut back to an idle. As divemaster, George Kremer, scrambled forward to set the anchor, I looked up to see a giant white rock towering 90 feet above our boat. We were in mid-ocean nine miles west of St. Thomas Harbour and about to dive at fabulous **Sail Rock**.

About 20 yards east of us, another dive boat was preparing to do the same. Armando Jenik was carefully maneuvering the 40 foot *Goldielocks* into position for a safe anchorage. Ocean swells were crashing against the big rock but we were safely anchored in the protective lee of this craggy mountain peak. The immense stone towering above our heads was covered in white — the result of centuries of sea bird droppings. We could see where the almost vertical sides of the rock slanted downward into the water to depths of 30 feet and beyond.

Once anchored, we quickly slipped into the water and were confronted with a breathtaking sight. The undersea visibility was better than 100 feet and the bottom was a fascinating jumble of stone ledges and giant boulders. Everything beneath us was richly carpeted with corals, encrusting sponges, seafans and gorgonians. It was an underwater fairyland. Above us were rolling clouds of surf striking against the perpendicular walls of the rock. We paused for a few moments as Armando photographed divemaster, Pam Dickinson, swimming just beneath the turbulent clouds of sea foam.

Our dive group headed toward the southwest corner of Sail Rock where a series of four undersea pinnacles rise from the depths. Along the way, we encountered a school of perhaps 200 southern sennets, a species of miniature barracuda nine inches in length. Next we spotted two hawksbill turtles snugly wedged under rocks, vainly attempting to hide from view. All along our journey we encountered Nassau groupers, queen angelfish, trumpetfish, French angelfish and even a large scrawled filefish. The fish life was incredibly prolific and totally unafraid. We knew we were in virgin diving territory.

We encountered the undersea pinnacles some 20 to 30 yards off Sail Rock. These great stone monoliths start in 80 feet and come within ten feet of the surface. The four pinnacles are grouped close together and their vertical sides help form canyonways which beckon exploration. At closer range, we were dazzled by the side walls, which are decorated in a kaleidoscope of colors by tightly packed, bright yellow cup corals and brilliant patches of encrusting sponge. The hues ranged from bright red to



Rooms of the Villa Olga at the St. Thomas Diving Club.

Above inset, scuba instructor Paula Selby leads a class in the pool at the St. Thomas Diving Club.

Bill Kennedy fills scuba tanks at Villa Olga.





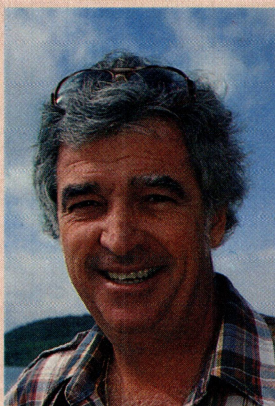
Goldielocks, a 40 foot, custom dive boat.



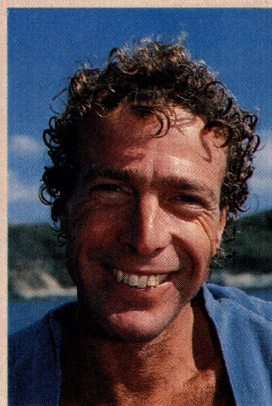
Custom Delta, 25 foot dive boat.



Pam Dickinson



Doug Doumeng



Armando Jenik

Top, the picture postcard beauty of St. Thomas Harbour as seen from the St. Thomas Diving Club.

Left to right, Pam Dickinson, resort manager; Dick Doumeng, owner and general manager; Armando Jenik, chief divemaster — all from the St. Thomas Diving Club.

rich orange to yellow to green to purple and blue.

As we began photographing the sponges and corals, a school of powerful horse-eye jacks swooped down from overhead like a flight of jet fighters. There must have been 20 or 30 of the big fish and they circled us twice with great curiosity. As quickly as they came, the big jacks parted and vanished. As if by magic, a giant 40 pound African pompano appeared in their place. It was an absolutely magnificent creature with flashing eyes and a brutish face. We were awestruck by the boldness of this powerful pelagic. It was a fitting climax to the end of a perfect dive.

Sail Rock is truly one of the great dive adventures of the U.S. Virgin Islands, but it has remained tantalizingly beyond the reach of the average visitor. Only recently has this spectacular spot become accessible with the advent of the St. Thomas Diving Club and its fleet of dive boats.

The St. Thomas Diving Club is the most exciting resort concept to appear on St. Thomas in a long time. It is not exactly a club, in the terms of a dive club, but instead a complete scuba resort center — built by divers, run by divers and specifically devoted to hosting serious divers. And yet, it is not exactly a center because the St. Thomas Diving Club is spread out all across the island with dive shops and dive boat piers in three different locations, as well as a fleet of five custom boats that visit more than 50 different dive sites.

The St. Thomas Diving Club is a conglomerate of five separate businesses: an intimate diver's hotel; a broad-based dive charter service; a scuba training school; a large dive boat service; and a diver's booking service for 16 different St. Thomas hotels and condominiums. At first glance, the complexity of this operation is almost overwhelming, but as you look more closely you begin to admire how well everything fits together. For the visiting diver, it means a full service operation offering a wide range of vacation options.

VILLA OLGA HOTEL

The Villa Olga is the first complete diver's hotel to be built on St. Thomas. Although small in size, it offers just about every facility and service a diver could need. Owned and operated by Dick Doumeng, a diver himself, the hotel is run by a staff of divers well experienced with the resort business.

The Villa Olga is less than one mile from the St. Thomas airport, and is right at the water's edge on the west side of St. Thomas Harbour. Set into the side of a small hill, the hotel provides an incredibly picturesque view of the harbor and boating activity. The late afternoon sun produces a warm glow and the distant

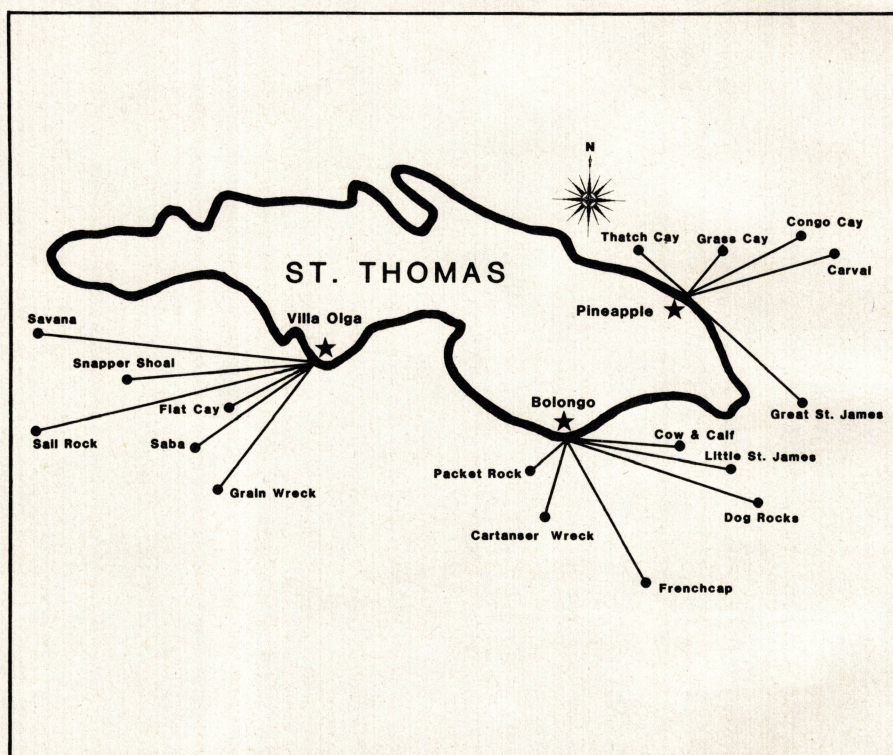
St. Thomas Diving

waterfront looks like a scene from a storybook.

At this point, Villa Olga has only 12 rooms and enough beds to accommodate a maximum of 24 guests. Another 18 rooms are to be added in 1982. The rooms are all new (constructed within the last year) and equipped with air-conditioning, twin beds, showers and an open air porch. The atmosphere is informal, relaxed and very cordial. Within a day after arrival the entire hotel staff is on a first name basis, and each guest receives a

anything from suntan lotion to a regulator and BC. Just outside the front entrance is a large open air veranda which serves as a quaint cafe style restaurant, open for breakfast and lunch. The food is exceptionally good and the menu has a certain diver's touch with such selections as; a scuba salad, snorkel snacks and a dive-master beef burger.

As for evening dining, the Villa Olga is literally surrounded by fine restaurants. Immediately next door to the hotel is the brand new Chart House Restaurant, a



The three St. Thomas Diving Club centers and the nearby dive sites. (Map not to scale.)

good deal of personalized service. Hotel manager, Pam Dickinson, is an accomplished divemaster, underwater model and former dive shop manager. She has an incredible memory for faces and names and makes everyone feel as if he or she were a guest in Pam's own home.

Just below the rooms is a brand new swimming pool and sun deck area. Most guests find this facility an ideal place to congregate, relax and socialize between dives or after a full day of activity. Further down the hillside, below the pool, is the combination hotel lobby and dining area. The hotel lobby has a front desk and a complete scuba boutique. You can find

beautifully constructed facility for cocktails and dinner. In the opposite direction, 200 yards down the road (within walking distance) is Frenchtown — a charming ethnic community with more than a half-dozen of the finest restaurants on St. Thomas. The Cafe Normandy is regarded as a top French gourmet restaurant and just below is LeBistro which serves delicious country French cuisine. A few steps away is Alfredo's, with Italian food; Bardolino's with French-Italian food; and Portofino's with Italian food. Further down the street is the Quarter Deck, which serves steaks and seafood and has a highly entertaining floor show.

Club

The star of the show is Yancy deVeer — a country-western singer with a delightful repertoire.

The Villa Olga is the headquarters for the St. Thomas Diving Club and a daily gathering point for its staff of 14 scuba instructors and dive guides. Across the parking lot from the hotel lobby is a complete dive center including an air station, a scuba rental department, a regulator repair shop and docking facilities for at least three of the dive boats. The swimming pool area is utilized almost every morning for basic scuba classes prior to the open water training excursions to shallow coral reefs. In the evenings, there are underwater movies, slide shows and lectures by various divemasters and guest photographers.

In addition, Villa Olga has just recently become the new home of the Jim and Cathy Church Underwater Photography School. A large classroom for 20 students has just been completed and a full darkroom with color film processing equipment has been installed in a building adjacent to the hotel lobby. Jim and Cathy Church conduct one-week underwater photo classes throughout the summer and fall months. The photo class curriculum is divided between lectures and film shows at Villa Olga and photo trips aboard the new 68 foot *Mohawk II*.

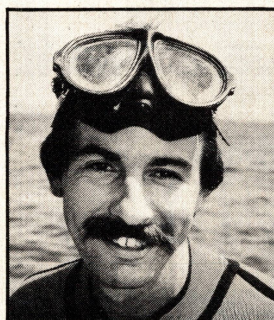
DIVE BOAT FLEET

The major business of the St. Thomas Diving Club is its dive charter service — one of the largest in all the Virgin Islands. The club operates four custom built dive boats which run trips twice daily and a giant 68 foot cruise boat for overnight trips. The two larger boats, the *Goldielocks* and the *Unwinder*, are 40 foot custom built Lindsay boats that can carry up to 30 divers each. The smaller crafts, *Diver I* and *Diver II* are 25 foot custom built Deltas that can carry up to 12 divers each. Each boat makes two trips daily, departing at 9:00 am and 2:00 pm. Night dives are conducted several times weekly.

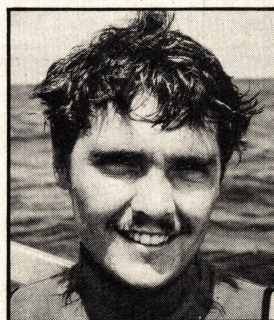
The club's four dive boats are berthed at three strategically located parts of the island. Because of their close proximity to the best diving areas, these boats offer short running times to all major dive sites around St. Thomas. In addition, the club has a fleet of passenger vans for transporting guests from their hotels to the various dive boat locations. Most dive trips are organized on the basis of the guest's dive skills and experience. Beginner div-



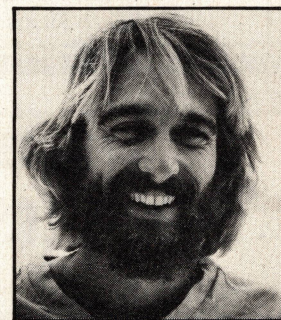
The dive boat, *Goldielocks*, anchored at Sail Rock, nine miles out from St. Thomas Harbour.



George Kremer,
Director of Training



Bud James, Bolongo Bay
Dive Center Director



Jeff Strickland, Pineapple
Beach Dive Center Director

ers are put aboard a boat scheduled for a shallow wreck dive or a coral reef, while more experienced divers board a boat headed for an offshore pinnacle dive or a deeper wreck.

VILLA OLGA DIVE CENTER

The Villa Olga Dive Center is the largest of the three St. Thomas Diving Club facilities. It is also the central headquarters for the entire operation. This complex includes a complete scuba equipment rental department, two large air compressors, 200 tanks and a regulator repair shop, where all equipment receives a regular monthly maintenance. The two largest dive boats, *Goldielocks* and *Unwinder*, are berthed here, providing easy access to all dive spots south and west of St. Thomas Harbour. This is where you will usually find Armando Jenik, chief divemaster and skipper of the *Goldielocks*, George Kremer, training

director and Bob Carney, operations manager.

From the Villa Olga location, west of St. Thomas Harbour, the dive boats are within easy reach of many splendid dive sites which have remained untouched and undisturbed over the years. Most of these virgin reefs lie off the more remote region of St. Thomas where boat marinas and hotels are non-existent. These offshore reefs are some of the richest in marine life and the most abundant in fish.

The western reefs include such spectacular dive sites as Sail Rock, a fabulous mid-ocean rocky pinnacle which attracts an extraordinary array of large pelagic fish. Here the water is super clear, with visibility exceeding 150 feet. Just off the main rock are four submerged pinnacles covered with brilliant sponges and corals. Another spectacular spot, completely hidden from view, is **Snapper Shoal**, a

(Continued on Page 106)

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Included in both packages:

Round-trip airport transfers, double occupancy, unlimited boat dives — depart twice daily, tank, belt and air for unlimited night and beach dives, \$5 casino chip, check-out dives, YMCA/PADI free with diver package, airfare not included.



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Enjoy apartment living, including all-electric kitchens, in the midst of Grand Cayman's most spectacular diving area, with picturesque reefs starting only 100 yards from your doorstep. EP Dive Packages and Group Rates. Rentals from \$75 per day, one-bedroom apt., double occupancy.

Write AIR MAIL to:
Spanish Bay Villas
Box 1200A
Grand Cayman, British West Indies

CAYMAN DIVER

(Continued from Page 83)

Our party above was no less entertaining, we toasted with champagne and our shouts of "Happy New Year" succeeded in arousing Rob (one of three who had gone to bed before midnight) to join us.

On our last day we told Jerry we would like to make a wall dive, a wreck dive and a dive for fish photography. These requests proved to be no trouble for our able captain.

Our first dive was back on the wall at Twin Sisters and it was no less impressive the second time around. We then moved north to Seven Mile Beach for a dive on the recently sunk *Oro Verde*. The hurricane Grand Cayman experienced in August of 1980 had moved the wreck closer to shore by 150 feet. Visibility is usually good on this wreck as a slow steady current moves away any silt stirred up from the sandy bottom by divers. Mary took down some Vienna sausages and was soon surrounded by grunts, hogfish and angelfish. Karl and I swam the 180 foot length of the wreck and observed many urchins with attendant red crabs. We also noticed small blennies hiding in the crevices and schools of parrotfish feeding on the algae attached to the ship.

Our last dive was closer to George Town Harbor at Aquarium Reef. Shortly after entering the water Karl spotted a southern stingray and I followed it as it swam over a sandy area full of garden eels. Karl brought down some bread and had hardly opened the plastic bag before he was surrounded by fish. I couldn't see his face through the French angels. Even the garden eels seemed tamer on this reef and I was able to get quite close while photographing them. Aquarium Reef has a maximum depth of 45 feet and we all managed long dives before we reluctantly headed for the surface.

It really had been a fun week and much of this was owing to the congenial nature of our group. We had all been treated like VIP's by captain and crew (Jerry even had my cup of tea waiting when I emerged in the morning). They spared no effort to see to our creature comforts and did everything in their power to give us good diving. We'd have to agree that Jerry has certainly filled Paul Humann's shoes as a congenial and considerate host (he is also a good cook and talented underwater photographer).

For more information about a trip on the *Cayman Diver*, floating dive resort, contact See & Sea, 680 Beach St., San Francisco, CA.

YOUR BAHAMAS

Diving here is perfectly clear when you read this book.



Before you dive The Bahamas, dive into our fact-filled "Bahamas Sports Holidays" Guide.

It tells you everything you need to know about diving in our crystal clear, turquoise water. With information on 12 different islands and 27 dive operations. You'll find drop-offs, wall diving, blue holes, coral gardens, marine preserves, night diving, caverns and wrecks.

Including facilities, equipment, rentals and dive boats. And after a day of diving, we'll even tell you where you can dive into a 7 foot hot tub — right on the beach!

Dive into your own Bahamas vacation. Send for our free "Bahamas Sports Holidays" Guide today. Every diver from novice to expert will find diving really is better in The Bahamas.

Please send me a free copy of the "Bahamas Sports Holidays" Guide. Check here _____ if your group or club would like to view a new, breathtaking 30 minute film on diving in The Bahamas.

Bahamas, P.O. Box 523850, Miami, FL 33152

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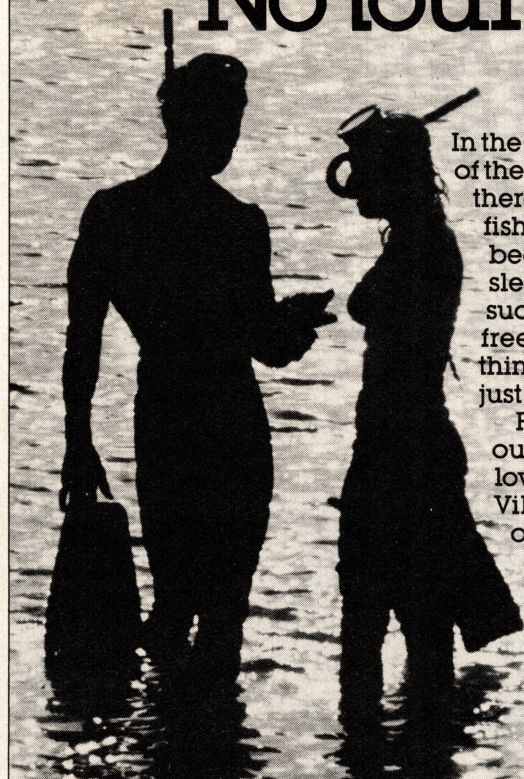
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My Travel Agent is _____

It's Better In The Bahamas.

No tourists.



In the warm azure waters of the southern Bahamas, there's an island with great fishing and diving, beautiful beaches, quiet harbors and sleepy villages, and with such a friendly, happy, care-free feeling that we don't think of our visitors as tourists, just new friends.

For more information on our island and our two fun-loving resorts—Out Island Inn Village and Hotel Pieces of Eight—see your travel agent or call or write.

The Inns of Exuma

P.O. Box 49, Georgetown, Great Exuma, Bahamas

Out Island Inn Village: (809) 336-2171-2; Hotel Pieces of Eight: (809) 336-2600-1
Bahamas Reservation Service 800-327-0787 (In Florida, 800-432-5594) Canada, Zenith 99110

RUNAWAY BAY TOURS

Groups of divers can take advantage of new four day/three night and eight day/seven night "Diving and Much More" package tours to Runaway Bay, Jamaica, featuring some of the Caribbean's best diving. Marine life studies and underwater photography courses are optional activities on the tour.

With its wide range of diving — from shallow reefs rich with corals to photogenic wrecks to walls more than 3000 feet deep, studded with black coral, Runaway Bay pleases novices and experts alike.

For more information, contact any travel agent, or the tour operator, Weekends Away Travel, 6015 Garfield Street, Hollywood, FL 33020; telephone toll-free (800) 327-9543; in Florida (305) 983-8434; in Dade County (305) 625-0734.

AQUAVENTURE/RED SEA

Aquaventure International will conduct a dive/photo tour of the Red Sea October 16-30. The tour includes nine full days of diving the Sinai reefs with the Red Sea Divers, while staying at the Sharm Hotel, and will be followed by two days in Jerusalem.

An introductory underwater photography course and a series of informal workshops will be conducted in Sharm. The course will be taught by Frank Fennell, former Bonaire divemaster and a freelance underwater photographer and instructor.

For reservations and more information, contact Aquaventure International, P.O. Box 237, Waitsfield, VT 05673; or phone (802) 583-3158.











PHOTO DIVE BONAIRE

Dive Bonaire announced the birth of the Photo Dive, a unique option for underwater photographers. Offered several times weekly, the Photo Dive consists of a photographically oriented reef description given by Photo Bonaire's Dee Scarr, along with valuable tips on photographing marine life. Underwater, Scarr will point out subjects of particular interest — such as the members of Bonaire's Over Forty Purple Tube Sponge Club — help find and pose macro subjects, and generally assist in any way possible. Also, as befits a Photo Dive, there is a fish feeding session, providing an opportunity for wide-angle shots as well as fish portraits.

For further information about Photo Bonaire or the Photo Dive, call toll free (800) 847-7198, or write, via airmail, to Photo Bonaire/Dive Bonaire, c/o Flamingo Beach Hotel, Bonaire, N.A.

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For information, reservations, write now to Cinnamon Bay Campground, Virgin Islands National Park, Box 120, Cruz Bay, St. John, U.S.V.I. 00830.



PENNEKAMP COURSES

Due to the tremendous response for the March Ocean and Reef Seminars offered at John Pennekamp Coral Reef State Park in Florida, a second series of courses has been scheduled.

June 1-4—an Advanced Certification Course for both YMCA and PADI.

June 5-7—a second Ocean and Reef Diving Seminar will be offered. Instructor and diver specialty certifications for this category will be issued.

June 12-14—a Reef Ecology Specialty Course is offered which includes: reef formation, ecology, marine life, and how to save reefs. This course is offered to individuals and groups (including high school and college classes).

For information contact Al Marques, P.O. Box 13-M, Key Largo, FL 33037; telephone (305) 451-1621.

COLUMBUS LANDINGS RELOCATION

Dick Batchelder, president of Columbus Landings Service Co. Inc., has just announced the relocation and consolidation of all Columbus Landings offices and facilities in Ft. Lauderdale. The Travel Department, formerly located at 2101 N Federal Highway, has been moved to the Red Aircraft complex at 292 SW 34th St., adjacent to the Ft. Lauderdale airport. The new offices for the Travel Department are now located in the same building with the company's purchasing department, shipping department and dispatch section. It is from this location that the company operates three flights weekly (Monday/Thursday/Saturday) to San Salvador Island in the Bahamas.

The mailing address for Columbus Landings remains the same — P.O. Box 1492, Ft. Lauderdale, FL 33302. However, the telephone numbers have been changed due to relocation. The U.S. toll free number is (800) 327-2724. The local Florida telephone number is (305) 524-4629. Answering the Travel Department phones and taking reservations are Joan Kinirons, Maureen Morgenthien and Jan Milbyer. All three travel coordinators are certified scuba divers with a great deal of experience in diving the waters of San Salvador. Columbus Landings Service Co. is the U.S. representative for the Riding Rock Inn resort hotel, Island Divers Ltd., and the Riding Rock Ocean Villas.

SCUBA CUBA

American Air Ways Charters, Inc., has a new brochure.

Entitled Scuba Cuba, the brochure contains 12 panels of photos and information, and folds to 4 X 9 rack folder size. It features underwater photography off the coast of the Isle of Pines by Bob Wallace.

Scuba Cuba brochures can be obtained from your travel agent or American Air Ways Charters, Inc., 1840 W. 49th St., Hialeah, FL 33012.

The Caymans

"If coral drop-offs are artistic masterpieces, the Caymans are the Louvre."

Paul Tzimoulis, Editor, Skin Diver Magazine

But spectacular wall diving, isn't all the Caymans are famous for.

No dive location in the world offers the variety of experiences and conditions for both beginners and experienced divers as the Caymans. And all the dive sites are close by. No long drives or expensive boat trips.

More qualified dive masters than any island in the Caribbean. Dive shops with complete rental gear. A two-man recompression chamber on Grand Cayman.

Comfortable dive lodges. Oceanfront hotels. And luxury apartments accommodating six can be rented for long or short stays.

An hour's flight from Miami on Cayman Airways. A little longer from Houston, Texas.

For information and reservations contact your travel agent or write or call: (305) 444-6551.

Cayman Islands
Department of Tourism

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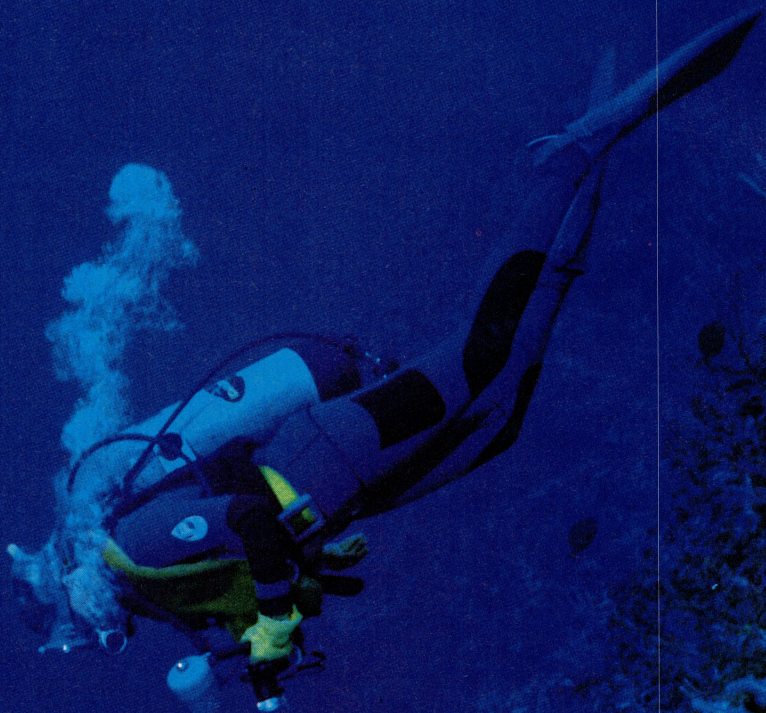
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1-800-241-7977



WALKER'S CAY EXPANDS

Walker's Cay Hotel, an intimate resort at the "Top of the Bahamas," has added 600 square feet of floor space to its dive facility. Soon to be added to the facility is a photography department with camera rental and overnight E-6 developing.

The dive center at Walker's Cay offers daily dive trips as well as resort and full certification courses. It is also a PADI training facility and will provide certification dives for PADI students from the United States. Cheryl Kirz is the dive manager.



Cheryl Kirz

For further details on special dive packages please contact Ms. Donna Reed, Walker's Cay Hotel & Marina, 700 SW 34th Street, Fort Lauderdale, FL 33315.

POSEIDON TO PHILIPPINES

Poseidon Ventures has a new dive program to the Philippines with Aquaventure Phils. The groups will be using a 65 foot Hatteras type cruiser with 11 air conditioned staterooms as a live-aboard dive vessel. Cruising and diving locations will depend on the season of the year. Current departures are: Al Ziegler, Ziegler's Diving Service, North Platte, Nebraska, on June 7; Joe Liburdi, Light-house Divers, Renton, WA on Aug. 30; and Don Bloye, Silent World, Bellevue, WA on Sept. 11. Departures for October and November are also being planned. The tour features a trip to Corregidor and ten days of diving from live-aboard vessels with optional extensions to Hong Kong. For further information write or call Poseidon Ventures Tours, 359 San Miguel Dr., Newport Beach, CA 92660; (714) 644-5373.

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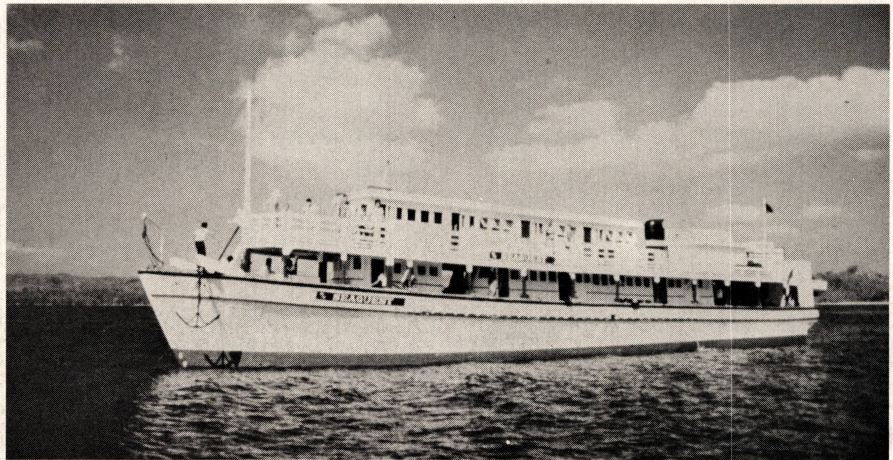
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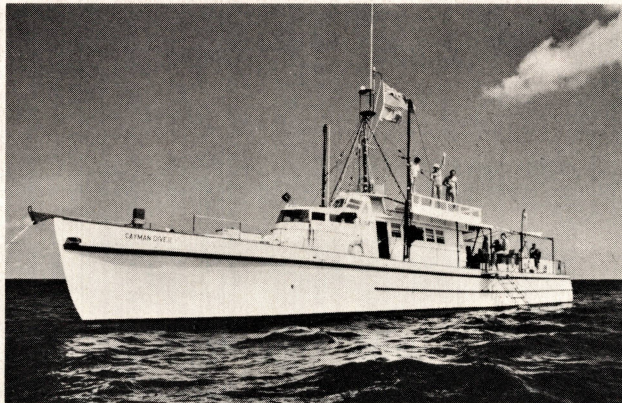
Galapagos—"Encantada"



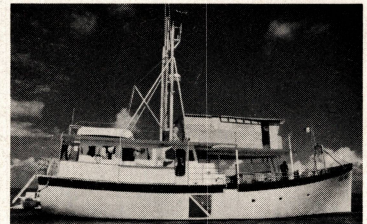
Philippines—"Sea Quest"



Fiji—"Sta Reta"



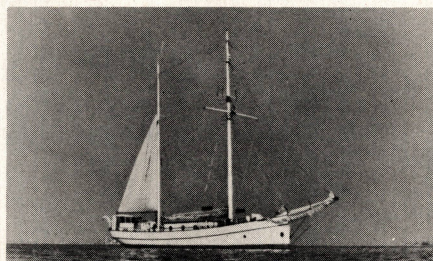
Cayman—"Cayman Diver"



Belize—"Isla Mia"



Australia—"Reef Explorer"



Roatan—"Heddy"



Guadeloupe—"Cadaques"



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CAYMAN BROCHURE

The Cayman Islands Department of Tourism has recently published a new color brochure outlining the vacation packages available at many hotels and condominiums this summer. The summer vacation dive packages available from now until December 15 represent a savings compared to the winter rates. The four-panel brochure describes eight day/seven night packages from \$136 and four day/three night packages from \$64.

For copies of the brochure and further information, contact the nearest Cayman Islands Department of Tourism office: or 250 Catalonia Ave., Suite 604, Coral Gables, FL 33134.

In Canada, contact the Cayman Islands Department of Tourism, 11 Adelaide St. West, Suite #406, Toronto, Ontario M5H 1L9.

BON BINI MEANS WELCOME

Visitors to the sunny Caribbean island of Curacao are greeted with, *bon bini*, the Papiamento expression for welcome. And, those visitors purchasing a hotel package of seven nights or more — from May 1 through December 15 — are entitled to a host of special bonuses and discounts as part of the island's Bon Bini/Free Spree plan.

The days are active for Bon Bini participants. They receive admission to the Curacao Museum, which is situated in a "landhuis" (plantation house) dating from the early 1800's. Bon Bini vacationers can ride aboard a glass-bottom boat and will also receive discounts on watersports and land sightseeing trips.


For further information, contact your travel agent or the Curacao Tourist Board, 685 Fifth Avenue, New York, N.Y. 10022; (212) 751-8266.

SEA CAMP 1981

Science Education Afield (SEA) will conduct two 10 day camps in marine ecology this August. Students will be exposed to both marine and terrestrial subtropical ecology. SEA Camp is open to all persons over 13 years of age. A complete scuba certification course will also be offered.

In addition to the ecology program, students will be exposed to Mexican culture and Mayan archaeological sites. This program will be conducted on the shores of the Caribbean at SEA's Yucatan, Mexico site in Puerto Morelos.

For details and application, contact: Jere Hallenbeck, Executive Director, Science Education Afield, Inc., 1425 Erie Boulevard East, Syracuse, New York 13210.



Romora Bay Club

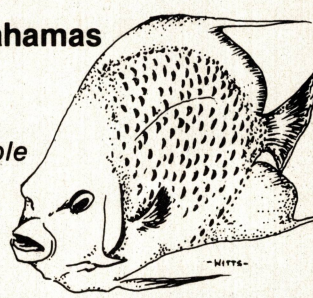
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Just an hour off the Florida coast lies Chub Cay, a slightly luxurious private island... with some of the best diving in all The Bahamas.

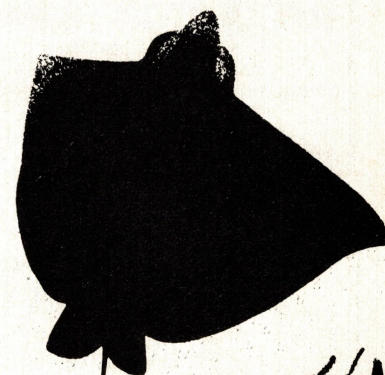
On shore, Chub Cay Club offers every amenity for divers... a complete dive shop, dive boats & guides; a luxury yacht club, fine dining and island music; pleasant rooms with a harbor view and sparkling pool. Plus tennis, fishing, sailing and shelling... with miles of beach to roam.

Off shore, superb diving is just 5 minutes from dockside. Plunge 80' over Chub Cay Wall, home of eagle rays and schooling jacks; explore Canyons & Caves, a maze of cuts and caverns, teeming with tropical fish; or snorkel Mama Rhoda Reef, a forest of elkhorn & staghorn corals.

Chub Cay is a Bahamas Port of Entry with sheltered marina for yachts & a smooth 5000' strip for private pilots and charter flights.

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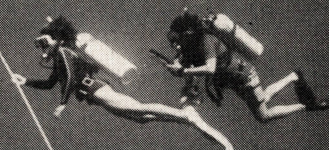
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photo by Rick Frehsee

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**A Guide to Reefs of the Cayman Islands, by
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AQUATIC CENTRES PHOTO COURSE

The British Virgin Islands Aquatic Centres, owned and operated by George and Luana Marler, has completed its sixth Coral Reef Underwater Photo Course for Southampton College, Southampton, New York.



The course was taught by George Marler and John Deitz. John is an underwater photo instructor and a marine biologist. Each student makes ten photo dives and all photographic equipment is supplied by the Aquatic Centres.

For information on future courses, contact: Aquatic Centres, Box 108, Roadtown, Tortola; or call (800) 345-6296.

SSDP II

Sea Safaris has set the date for Lou Fead's second Skill Sharpening Dive Program (SSDP) on Cayman Brac Island. Lou will be conducting his six day course October 10-17 at the Buccaneer's Inn. Lou, author of the book, *Easy Diver*, is a nationally known speaker, inventor and instructor. SSDP II will combine lectures, skill dives and fun dives concluding with an advanced certification for each participant.

Course content will consist of diving antics, buoyancy control, U/W navigation, night diving and deep diving.

For more information, write Sea Safaris, 3701 Highland Ave., Suite 304, Manhattan Beach, CA 90266; or call (213) 546-2464.

QUIESCENCE ADDS INSTRUCTOR

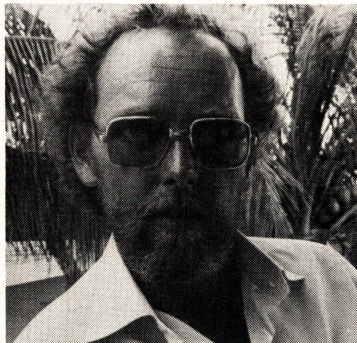
Quiescence Diving Services of Key Largo has added Bill Scheal, a PADI instructor, to its staff.

Quiescence's training classroom, freshwater pool and dive boats are located in the center of the Key Largo Kampground MM 101.5.

For information on classes or dive trips call (305) 451-2440 or write to Quiescence Diving Services, P.O. Box N-13, Key Largo, FL 33037.

BEACH CLUB MANAGER

Christopher Douglas-Pulleyne has been named manager of Grand Cayman's Beach Club Colony resort.



A native of Malawi and of Zimbabwean citizenship, Douglas-Pulleyne has managed a number of properties in Malawi, South Africa, Sierra Leone, and most recently Australia and the United Kingdom.

Concurrently, the Beach Club has announced plans to open The Cave, a new bar catering to tourists and island residents. 🐟

CAYMAN PARTY

The 5th Annual Cayman Party will be held this year at the Houston Oaks Hotel, September 25-26. There will be U/W movies, slide presentations and music by Barefoot Man and his band. Other entertainment is also planned.

Last year's event was sold out four months in advance. For more information write: The Cayman Party, Box 1249, Grand Cayman, BWI. 🐟

ROBERTS TO TRUK

Poseidon Ventures has a special Truk Lagoon dive tour, departing Sept. 12, to be led by Smokey Roberts of Divers Den, Lancaster, PA. Smokey is a noted underwater cinematographer who produced a film on Truk Lagoon some years ago. The tour features nine days of diving the wrecks of Truk Lagoon. For further information call Smokey at Divers Den or Poseidon Ventures Tours, 359 San Miguel Dr., Newport Beach, CA 92660, (714) 644-5373 (collect calls accepted). 🐟



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Scuba Quiz

Category: Dive Lights

By Dennis Graver

Dive lights are useful not only in wrecks and at night, but also to see in and under places during the day and to view objects in their true colors. A light is a valuable accessory every diver should have. There is more to one than a battery, bulb and a switch, however, so let's find out what you know or don't know about underwater lights with some questions. The answers are on the following page.

1. The buoyancy of a dive light ideally should be:

- ☐ A. Positive at all times
- ☐ B. Negative at all times
- ☐ C. Neutral at all times
- ☐ D. Positive at the surface and negative at depth
- ☐ E. Negative at the surface and positive at depth

2. The beam pattern for a dive light should be:

- ☐ A. Wide
- ☐ B. Narrow
- ☐ C. Adjustable
- ☐ D. Both B and C are correct
- ☐ E. None of the above

3. The effect of a flat plexiglass port on the front of a dive light is:

- ☐ A. To widen the beam pattern
- ☐ B. To narrow the beam pattern
- ☐ C. Of little or no consequence
- ☐ D. None unless scratched

4. Which of the following types of batteries has a "memory" for charge and discharge patterns?

- ☐ A. Carbon-zinc
- ☐ B. Nickel-cadmium
- ☐ C. Lead-acid
- ☐ D. Mercury

5. Most rechargeable dive lights will work at close to full intensity for:

- ☐ A. Less than an hour
- ☐ B. One to two hours
- ☐ C. Three to five hours
- ☐ D. More than five hours

6. Select the statement that is generally true:

- ☐ A. Dive lights are more powerful out of the water than in the water
- ☐ B. Dive lights are more powerful in the water than out of the water
- ☐ C. The power of a dive light is the same whether in or out of the water

7. By using a bulb rated at a voltage lower than that of the batteries:

- ☐ A. Bulb and battery life will be increased, but intensity will be decreased
- ☐ B. Bulb and battery life will be decreased, but intensity will be increased
- ☐ C. Battery life and intensity will be increased, but bulb life will decrease
- ☐ D. None of the above

8. Which of the following conditions indicates a need to service a dive light:

- ☐ A. A darkened bulb
- ☐ B. Swollen batteries
- ☐ C. Yellow-orange light color
- ☐ D. All of the above

9. Select the incorrect statement:

- ☐ A. Maximum life from batteries is obtained by intermittent use of a light
- ☐ B. A back-up light should be carried on night dives
- ☐ C. A lanyard of strong cord should attach the light securely to the diver
- ☐ D. A quartz halogen bulb gives more light per watt than a conventional bulb

10. Select the correct statement:

- ☐ A. To gain the attention of another diver at night, shine your light on the diver's chest
- ☐ B. Rapid up-and-down motion with a dive light is a signal that something is wrong
- ☐ C. It is a good idea to reserve use of an underwater light for in-water situations only.
- ☐ D. All of the above statements are true

Scuba Quiz

Answers: Dive Lights

1. D. Positive at the surface and negative at depth. If the light should be dropped into the water accidentally, it would be best if it floated. However, you shouldn't have to chase a light to the surface if you let go of it underwater. This ideal buoyancy situation can be achieved on many lights by placing a neoprene jacket on the outside and ballast on the inside.

2. B. Narrow. The wider the beam pattern, the less intensity there is in any given area. A spot-type beam has high intensity to provide concentrated light. Diffusion of the beam in the water is sufficient to provide peripheral lighting. A few lights offer bulbs that provide both spot and flood beams simultaneously.

3. C. Of little or no consequence. A flat glass port will narrow a beam pattern because of refraction of the light rays. The refractive index of plexiglass and water are nearly identical, however, so refraction through a plexiglass port is negligible. Scratches are not a problem either, as water fills them.

4. B. Nickel-cadmium. Ni-cad batteries work best when fully charged and fully discharged. When only partially used, the batteries remember the pattern and will only deliver about the same amount of power during future use even though fully recharged. Discharge ni-cads completely, then recharge them before storing them. Unless used soon, the batteries should be discharged again and recharged before being put into service.

5. B. One to two hours. The majority of rechargeables last about an hour, then light output decreases rapidly. One advantage of conventional batteries is that the light dims gradually as the batteries are exhausted, but the light doesn't go out completely as can occur with a rechargeable light. I prefer a rechargeable main light and a light with regular batteries as a back-up.

6. A. Dive lights are more powerful out of the water than when in the water. Batteries are temperature sensitive, producing less power as temperature decreases. The thermal capacity of water results in heat loss from the light, which decreases the power output. Another advantage of a neoprene jacket on a light is that of insulation. Some very large lights generate quite a bit of heat and are unaffected by water temperature.

7. B. Bulb and battery life will be decreased, but intensity will be increased. The resistance of a lower voltage bulb is lower, so a greater current will flow through the filament than the bulb was designed to handle. The higher current produces a more intense light, but at the sacrifice of decreased bulb and battery life. This procedure is effective for increasing the output of a small light, but care must be used in bulb selection. If the wrong bulb is chosen, it will burn out instantly or in just a few minutes. Ask others and experiment above water.

8. D. All of the above. Standard bulbs lose tungsten from the filament and this is deposited on the inside of the bulb, causing the blackening. A darkened bulb is likely to burn out and should be replaced. Swollen, oozing, or corroded batteries can ruin a light. Lights should be stored with batteries removed. Yellow-orange light color indicates weak batteries, which should be replaced or recharged.

9. C. A lanyard of strong cord should attach the light securely to the diver. False. A lanyard is valuable to keep the light handy, but rubber should be used rather than line. The light can get caught on a boat, rocks, and other obstructions and the diver needs to be able to pull free for safety.

10. D. All of the above statements are true. Shining a light into another diver's eyes at night will temporarily blind that person. Up-and-down movement of a light beam does indicate a problem, while a large O made with the beam indicates OK. Since the duration of light output from an underwater light is limited, use of a standard flashlight is recommended for above water activities.

Do you have a good dive light and a suitable back-up? Do you know how to use them properly? Have you taken a night diving specialty course? And, here's one final question in reverse: I'll give the answer and you figure out the question. The answer is, "Read and follow the manufacturer's instructions." What do you think the question might be?

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John W. Manlove — President. Mr. Manlove, a co-founder of the Institute served in the U.S. Navy until his retirement in 1967. He is a graduate of the U.S. Navy Deep Sea Diving School, Washington, D.C., and served as a diver aboard the USS Bryce Canyon, Nereus, Sperry and Klondike. He is experienced in ship repair and salvage, missile and ordnance recovery, underwater welding and cutting, underwater demolition for harbor clearance and diving instruction. Prior to founding the Institute, Mr. Manlove served as Chief Diving Officer-in-Charge of HeO₂ dives at the Underwater Technology Institute and as a free-lance diver in Alaska and Seattle. Mr. Manlove served as Vice President and Director of Training of the Institute for eight years prior to assuming the Presidency in April, 1976. He is a member of the Executive Committee, Institute of Diving; Panama City, Florida and he maintains close liaison with the U.S. Navy, the Association of Diving Contractors, and the Association of Commercial Diving Educators in matters pertaining to commercial diving training. Mr. Manlove was appointed to serve a term as President of the Association of Commercial Diving Educators in February, 1980.



Robert J. Schnepf — Master Diver/Senior Instructor/Director of Training. Mr. Schnepf served in the U.S. Navy until his retirement in 1971. After graduation from the U.S. Navy Deep Sea Diving School in Washington, D.C. in 1946, he served aboard various Navy salvage ships as tender and diver as well as Master Diver. His experience lies in the fields of ship repair and salvage, underwater welding and cutting, explosives, all phases of mixed gas diving and chamber operation in treatment of diving injuries. Mr. Schnepf assumed his new duties as Director of Training in April, 1976 and he was instrumental in developing the six-month training curriculum for the Institute. He has served as Master Diver and Senior Instructor for the Institute since August, 1971.




John L. Ritter — Instructor/Secretary, Treasurer. Mr. Ritter started his diving career in September, 1967. He is a graduate of the U.S. Navy Second Class Diver's School and the First Class Salvage Diver's School. Upon his separation from the Navy, Mr. Ritter attended the course of instruction at this Institute, graduating in December, 1971. He has had specialized training and experience in HeO₂ diving and manifold operation, salvage, underwater demolition, underwater burning and welding and shallow-water and deep-sea gear. He has been employed with Taylor Diving and Salvage in New Orleans and various commercial diving companies in the local area. In addition, he has completed courses in Industrial First Aid and Chamber Operation as set forth by the Department of Labor & Industries, Division of Safety, State of Washington. He has served as an Instructor at the Institute since January, 1972 and he assumed duties as Secretary/Treasurer in April, 1976.

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ST. THOMAS

(Continued from Page 91)

submerged rock mesa covered with lovely seafans and inhabited by several giant schools of snapper.

Among the many offshore islands which lie to the west is **Savana Island**, which offers at least two beautiful coral reef dives with a marvelous collection of sponges, hard corals and seafans. Closer to the Villa Olga is **Saba Island**, which offers at least three different dive sites with a wide variety of shallow and medium depth coral reefs for underwater photography and reef exploration. Just beyond Saba is **Dry Rock**, an ocean pinnacle which breaks the surface and is



photo/courtesy Eastern Airlines

Eastern Airlines operates three non-stop flights daily from Miami to St. Thomas.

surrounded by a multitude of different reef fish species. South of Saba and remaining unmarked is the **Grain Wreck**, a 450 foot long steel cargo vessel sunk in 130 feet of water. This wreck is inhabited by three giant jewfish and many big snapper. Circling over the hulk are all types of pelagics including horse-eye jacks, amberjacks and crevalle. This is an absolutely wild dive, but because of depth and currents, it is restricted to expert divers only. One of the prettiest sites in this area is **Flat Cays Reef**, a shallow coral reef with a fascinating underwater terrain of boulders, ledges and undercuts. The uneven bottom is carpeted with seafans, tube sponges, gorgonians, basket sponges and other delicate marine life.

BOLONGO BAY DIVE CENTER

Bolongo Bay is the site of the second St. Thomas Diving Club Center. It is also located on the south shore of the island, three miles east of town. The dive shop and air station are situated right on the beach at the Bolongo Bay Beach and Tennis Club. Here you will find a large air compressor, 50 scuba tanks, assorted rental gear and the *Diver I* berthed at the pier. Bud James is the manager of this operation and skipper of the dive boat. His wife Carol teaches snorkeling and introductory scuba lessons at the hotel pool and in the quiet cove directly in front of the hotel.

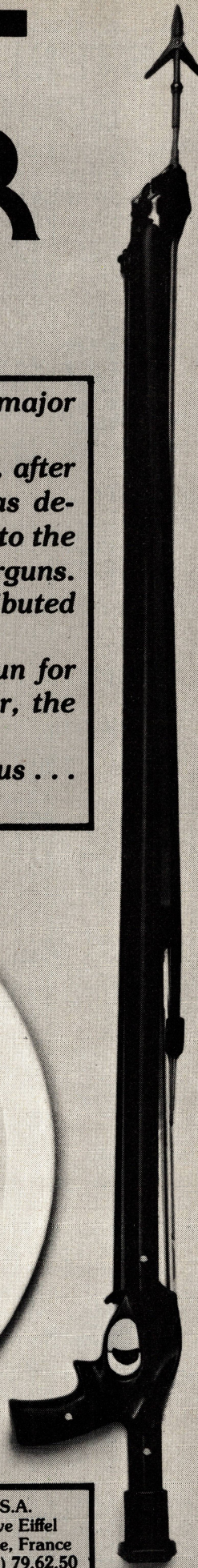
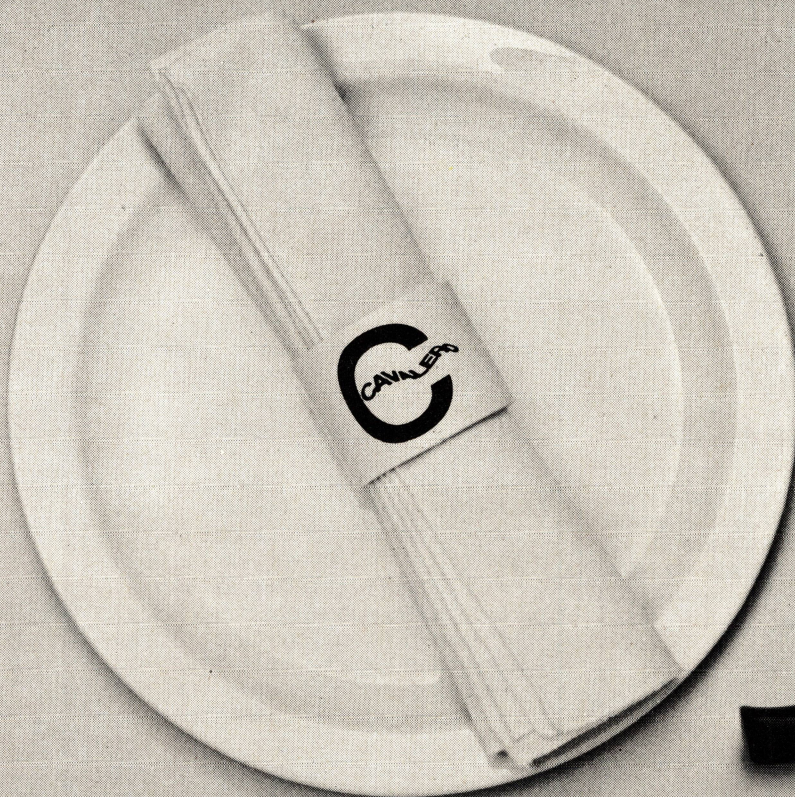
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ST. THOMAS

From the Bolongo location the dive boats (frequently two) can easily reach the offshore islands, wrecks and reefs which lie both south and east of this part of St. Thomas. These locations are perhaps the best known and most popular St. Thomas spots as they have been frequented for years by just about all of the dive guides. And despite their constant visitation, these splendid reefs remain intact, beautiful and exciting.

The dive spot which is closest to Bolongo Bay is **Packet Rock**, a submerged rock ledge and site of a 19th century shipwreck. In 1816, the packet ship, **Warrick** sank at this location with a cargo of china and tiles. Visitors can still find bits of china, cannon balls and other artifacts. Perhaps the most popular shipwreck of St. Thomas in recent years is the **Cartanser Senior**, a small steel hulled cargo vessel that lies in 50 feet of water. Visibility on this wreck often exceeds 100 feet.



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One of the most popular spots for serious divers is **Frenchcap Cay**, another mid-ocean rocky pinnacle located in super clear water. Visibility frequently exceeds 120 feet and the pinnacle is visited by large eagle rays, barracuda, horse-eye jacks and many other pelagics. A submerged pinnacle off the corner of the rock is a particularly beautiful dive because of the colorful tube sponges, gorgonian fans and other lovely marine life. Further to the east is **Dog Rock**, a shallow coral reef with an absolutely fascinating bottom terrain consisting of stone ledges and large boulders.

Perhaps the best known of all St. Thomas dive spots is **Cow & Calf**, a labyrinth of stone tunnels, giant boulders and coral reefs inhabited by a marvelous assortment of reef fish. It is a favorite location for underwater photography and fish watching. Nearby is **Little St. James**, with an absolutely beautiful coral reef in shallow water. In addition to the abundant

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We know of no other watch today that combines the features and design of the CASIO Watersports Alarm Chronograph. Features such as simultaneous time and date display, a daily alarm, time signal, countdown alarm and a stopwatch. These features are just the beginning. Compare them with any other watch in the world and you'll be convinced there is not a better watch for your money anywhere.

TESTED TO OVER 300 FEET OF WATER.

Three years ago, there were no digital water resistant alarm watches. Today they exist costing \$200, \$300 or more, but even these are rarely submersible beyond 100 feet of water. The CASIO Watersports has been tested to over 300 feet!! The O-ring construction and mineral glass crystal provide a tight seal which is virtually impervious to water or moisture.

THREE MEMORY ALARMS.

With this CASIO wonder you have not only one . . . or two alarms . . . but three separate, convenient reminder systems. You can set the daily alarm at precisely the minute you choose. The second alarm can be set to chime at every hour and half-hour. The third alarm is a countdown timer alarm which can be set at any position from 1 minute to 11 hours 59 minutes. And because of the convenient "PM" indicator, you won't be setting your alarm for the wrong time of the day.

PROFESSIONAL STOPWATCH.

With the press of a button you can set a full-featured stopwatch in motion. Record split times, 1-2 finishes, or freeze

the figures anytime to 1/100 second accuracy. In addition, to verify that you have stopped or started your stopwatch, a "beep" sounds. Plus another "beep" sounds at ten minute intervals during timing.

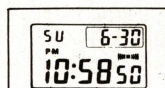
UNIQUE DISPLAY FEATURES.

Another advantage of this unique timepiece is that it keeps continuous display of the time no matter what mode is being used. This unique 12-digit LCD display guarantees you'll never lose track of the time. With the touch of a button, you can instantly have 24 hour European/Military time. Quartz accuracy to ± 15 seconds per month and a 5-year lithium battery tops off its list of features.

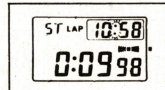
THREE CHOICES OF STYLES.

No other watch on the market today can match the aquatic abilities, convenience and stylish good looks of this superb timepiece. Three Watersports models are available. The featherweight, all black polysulfone Watersports W-100 is available for \$39.95, the

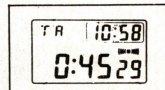
Watersports W-150C with solid stainless steel case and tough black polysulfone band is available for \$59.95, and for \$69.95, you can own the Watersports W-150 with solid stainless steel for both the case and band.



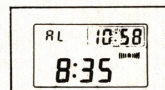
Normal time display: hrs./mins./secs., AM/PM, day, month, date, and 12/24 hr. time



Stopwatch Mode: 1/100 sec. timing, auto start/stop at 1 hr. lap time, lap and 1-2 finishes, normal time in upper corner



Countdown Alarm Display: Set from 1 min. to 11 hrs. 59 min., audible beep lasting 30 sec., normal time in upper corner



Alarm Setting Display: Set for AM or PM, alarm sounds for 30 sec., normal time in upper corner

IMMEDIATE DELIVERY, 30-DAY FREE TRIAL.

We can generally get your watch on the way to you upon receipt of order. (Other mail order suppliers generally state "prompt delivery," but with many this means 2 to 4 weeks before shipment.) We also offer you a 30-day money back guarantee, and CASIO gives you a one year manufacturer's warranty.

CREDIT CARD HOLDERS ORDER TOLL FREE

To order your Watersports watch, call the toll-free number below or send a check or money order for the total amount **plus** \$2.50 for the first watch, \$1.00 for each additional watch. If ordering by telephone, please have all the necessary information ready. If you wish, we will send your watch to you via U.P.S. **BLUE LABEL** 48-hour delivery for an additional \$2.00. Minnesota residents add 4% tax.

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Underwater life support systems are potentially dangerous to
a non-trained user. These include regulators, tanks, and
buoyancy compensators. This ad does not constitute an offer
to sell these items via mail order.

ST. THOMAS

fish population, this site is loaded with
small invertebrates for macro
photography.

PINEAPPLE BEACH DIVE CENTER

The dive center at Pineapple Beach is
the third and newest addition to the St.
Thomas Diving Club chain of facilities. It
is located on the north side of St.
Thomas, close to the east end and within
convenient range of the very best dive
spots on the north side of both St.
Thomas and St. John.

This facility has been installed in a
newly constructed building right on the
beach of the Pineapple Beach Hotel. It
has heavy-duty air compressors, 50
scuba tanks, and assorted rental dive
gear. The *Diver II* is moored at the pier di-
rectly out in front. Jeff Strickland is both
the manager of this dive center and skip-
per of the dive boat. Andre Weber is the
dive instructor for this resort and a boat
skipper as well.

The dive boat can quickly reach a tre-
mendous number of dive spots among
the offshore islands and pinnacles from
Pineapple. These sites are somewhat dif-
ferent than those on the opposite side of
the island, as the north shore of St.



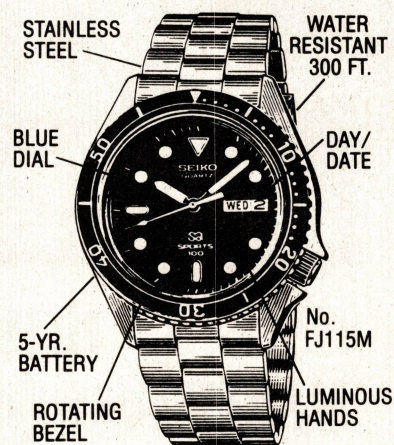
The Pineapple Beach Resort is home to one of
the St. Thomas Diving Club scuba centers.

Thomas faces the Atlantic Ocean. While
diving these exciting locations, you are
likely to see some rather unusual fish life,
including schools of tarpon, tuna and
manta rays.

One of the closest offshore islands is
Thatch Cay, which offers at least three or
four good dive sites. The best known
spot is the stone tunnel at the western tip
of this island. An underwater passage-
way goes right under the island, exiting
on the opposite shore. The walls are cov-
ered with brightly colored sponges and
cup corals. Sunk in the channel between
Thatch and Pineapple Beach, is the **Gen-
eral Rogers** wreck, a steel hulled ship
lying in 60 feet of water. The exterior of
this ship's hull is covered with exotic ma-
rine invertebrates. Further to the east is

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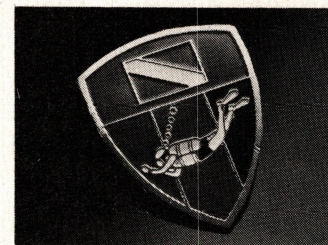
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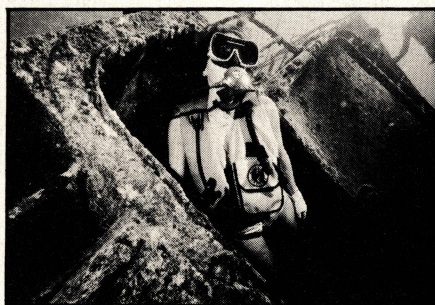
ST. THOMAS

Grass Cay, with an excellent reef off the western tip of the island. A series of rocky ledges running from 20 to 80 feet provide a wonderful opportunity for reef exploration and underwater photography.

A favorite spot for experienced divers is **Congo Cay**, a rapidly sloping drop-off at the western tip of the island that runs from 10 to 90 feet. This is an excellent spot for both macro photography and fish watching. The area is very busy with schooling tarpon, barracuda, turtles and jacks. Perhaps the very best dive spot on the north side is **Carvel Rock**, a stony pinnacle that breaks the surface just east of Congo Cay. Starting right at the surface, a rocky drop-off slants steeply to 90 feet. The slope of this reef is covered with hard corals, large gorgonian fans, giant seaweeds, and all types of sponges. In the shallows you will often find huge schools of baitfish constantly circled by large tarpon. Further down the slope are barracuda, horse-eye jacks, big snappers and other types of reef fish. This is also a favorite haunt for eagle rays, mantas, tuna and other pelagics. It is a really wild dive but there are often currents and one must be an experienced diver to make this trip.

DIVE CRUISE SHIP

The newest addition to the St. Thomas Diving Club's growing conglomerate of

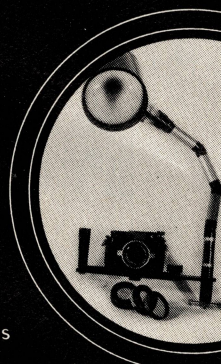


The Cartanser Senior is fun for beginners as well as more experienced divers.

businesses is the *Mohawk II* — an 18 passenger, long-range, overnight dive cruiser. This vessel has a 68 foot steel hull, specifically built to carry vacationing divers. It has 11 separate staterooms, a large dive salon and a luxurious interior. The boat is fitted with just about every convenience known to man, including its own freshwater desalination apparatus. It can carry up to 18 divers plus a crew of four. It is equipped with a 15 cfm Mako compressor and 50 scuba tanks. There are personal storage lockers for each guest's dive gear. The vessel has a stern dive platform and a convenient walk-through passageway in the transom. It is literally a floating hotel for divers.

The *Mohawk II* cruises the waters off St.

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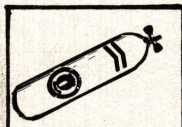
and the people behind the program
read about it in the July

skin diver

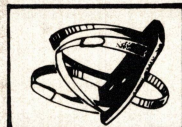
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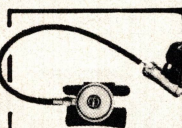
GOOD UNTIL JUNE 30, 1981



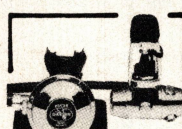
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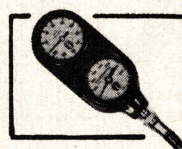
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\$129. U.S.D. CALYPSO
\$59. U.S.D. OCTOPUS



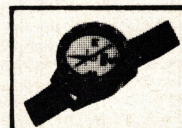
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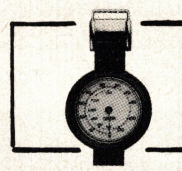
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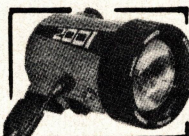
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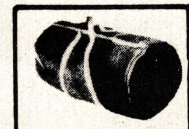
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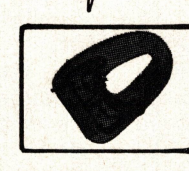
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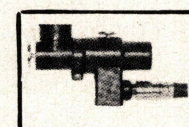
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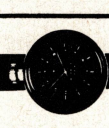
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\$49. TUNIC



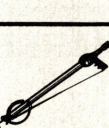
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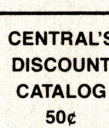
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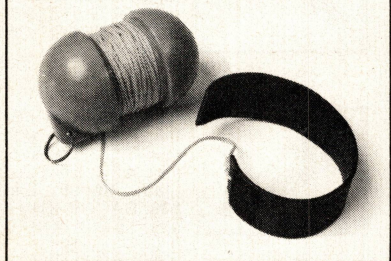
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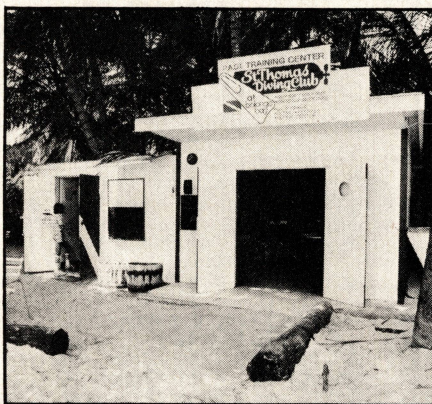
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ST. THOMAS

Thomas and St. John, making dives at many of the more isolated offshore islands and pinnacles which are difficult to reach by normal day boat trips. In addition to Frenchcap Cay and Sail Rock, the *Mohawk II* will be stopping at such locations as Dutchcap Cay, Cricket Rock, Outer Brass, Hans Lolick, Little Tobago and Mercurius Rock — all reputed to be phenomenal dive locations. In addition to the U.S. Virgins, the new cruise ship will be making more extensive voyages to the nearby British Virgin Islands, visiting such favorite spots as; the *Rhone*, Ane-gada Reef, Santa Monica Rock, Ginger



St. Thomas Diving Club center, Bolongo Bay.

Island and others.

The St. Thomas Diving Club is offering two different types of dive cruises of varying lengths. The standard one-week cruise consists of eight days and seven nights aboard the *Mohawk II*, and the itinerary encompasses both the U.S. and the British Virgins. The club also offers a special combination land and sea dive package, consisting of four nights at the Villa Olga Hotel and three nights aboard the *Mohawk II*.

DIVE TRAINING PROGRAMS

Still another dimension of the St. Thomas Diving Club operation is its large scale dive training program. The club conducts daily classes in both snorkeling and introductory scuba at four different hotel pools around St. Thomas, plus beach dives and boat dives for open water training exercises. George Kremer is director of training and the man who coordinates all of the instructional activities from basic scuba classes to full certification courses.

Among the hotels associated with the St. Thomas Diving Club are: Bluebeard's Castle, Bolongo Bay Beach & Tennis Club, Carib Beach Hotel, Island Beachcomber, Limetree Beach Hotel, Magens Point Hotel, Mahogany Run Hotel, Pine-apple Beach Hotel, St. Thomas Hotel,

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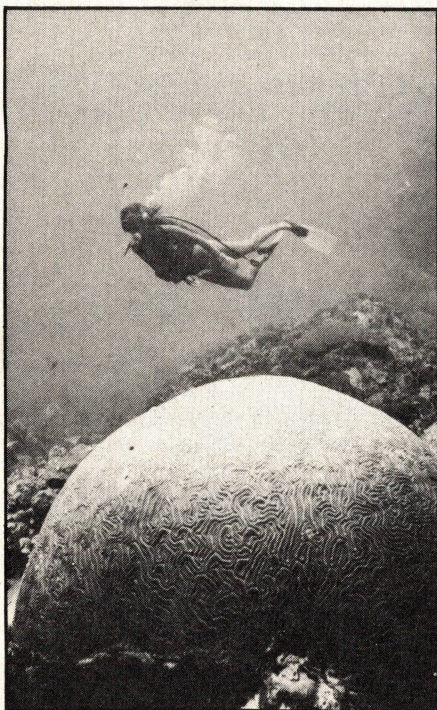


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Virgin Isle Hotel, Watergate Villas and Windward Passage. Club manager, Pam Dickinson, and staff can explain in detail the various services and facilities offered by each of these resort hotel properties.

Prospective guests can obtain information, prices and brochures by writing to: St. Thomas Diving Club, P.O. Box 4976, St. Thomas, U.S. Virgin Islands 00801. They can also make contact by telephone by simply calling (809) 774-1376. The resort is open every day of the week from 8:00 am to 5:00 pm.

Of all the islands in the Caribbean, St.



Visibility at Sail Rock often exceeds 100 feet.

Thomas is perhaps the easiest to reach. Eastern Airlines offers non-stop jet service directly to the island from Miami, with convenient and quick connections with other Eastern flights from all over the U.S. Eastern has at least three flights per day direct into St. Thomas; one in the early morning, one at noon and one in the early afternoon. Should these flights be booked solid, you could fly into San Juan, Puerto Rico and take a quick commuter flight over to St. Thomas.

The advent of the St. Thomas Diving Club has certainly added a new dimension to the resort business on St. Thomas. It is a well organized operation covering just about every aspect of vacation diving, as well as providing a unique opportunity to dive some very stellar dive spots among the offshore pinnacles and islands. The formation of this highly complex operation consists of a staggering amount of equipment and large staff of experienced dive guides and instructors. As one islander so aptly put it, "when Dick Doumeng does something, he does it right!"

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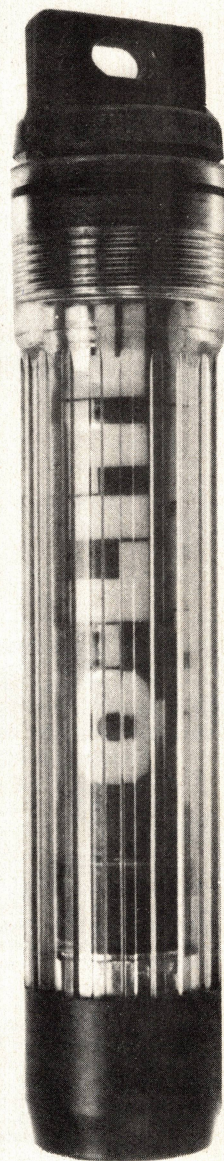
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FUJICA MARINE-8

(Continued from Page 60)

jinon lens is designed to keep the image sizes of near and far subjects in proper size perspective.

Underwater, you must use the sportfinder because the rear cover blocks the viewfinder. When the outer sides of the front and rear sights of the sportfinder merge, it shows about 90 percent of the area that will appear on film. At three apparent feet, we estimate the U/W picture area to be a little more than 12 x 16 apparent inches. Thus, the P2 camera is best used for relatively small U/W subjects such as fish or head and shoulder portraits. A movie light, held by a dive buddy, can add color to your fish portraits. But as long as the exposure is determined mostly by sunlight, use daylight film.

Because the sportfinder is parallax corrected for ten feet, you must make a parallax adjustment for your closer U/W distances. At three feet, for example, aim the sportfinder about four inches above the intended center of your subject. And at four or five feet, aim at least three inches above center.

Be careful not to get too close to your U/W subjects when filming in dim light because the subject may not be within the near limit of sharpness. As an aid for remembering how close you can get, use a label maker to attach the minimum camera-to-subject distances for each aperture to the side of the casing. Underwater, you can depress the shutter release halfway, read the aperture from the table and refer to the table for distance.

To photograph large subjects, such as an entire diver, use an upward camera angle to maximize depth of field and to get a silhouette effect. Have the diver angled toward the camera so you can get the entire body on film without using an excessive camera-to-subject distance. Keep in mind that wide-angle photography is best done with a more expensive wide-angle camera system.

For smooth filming, depress the shutter release halfway, pause, and then depress the release all the way. Squeezing the release in with one single motion could cause slight camera movement at the beginning of the scene. Also, avoid the temptation to allow the camera to dangle from the long wrist strap provided with the underwater casing. It could float upward and become entangled.

FUJICHROME SINGLE-8 FILMS

Two basic film choices are available at this writing: R25 (ASA 25) for sunlight exposures, and R200 (ASA 200) for tungsten (artificial light) exposures. These

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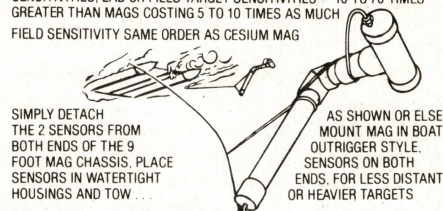
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films are also available with a magnetic strip for recording sound after the film has been processed. If you wish to have the magnetic strip, ask for R25 or R200 Post Recording Film.

The designations, Single-8 and Super-8 can be confusing. Fujichrome Single-8 is the same as Super-8 in terms of width, frame size, and the size and locations of the sprocket holes, and can be projected on any Super-8 projector. The differences are: (1) Single-8 is one-third thinner, (2) the Single-8 film cartridge is only about half as wide as a Super-8 cartridge, and (3) the Single-8 cartridge uses a pressure plate built into the camera rather than in the cartridge. To sum up, Single-8 and Super-8 film cartridges aren't interchangeable, but the processed film can be shown on the same projector.

Both Fujichrome films are made with a tough, polyester base that is hard to break. Splices, of course, must be made with polyester splicing tape because film cement can't be used. Processing is included in the retail price of the film. A pre-addressed return envelope is packaged with each cartridge.

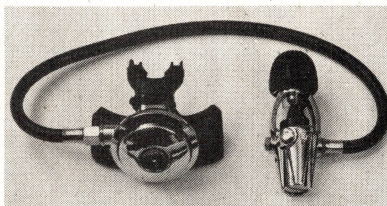
PRICES AND MORE INFORMATION

The suggested retail prices are as follows: Fujica P2 camera, \$104.95; Marine-8 P2 Watertight Case, \$100; R25 silent film, \$9.35; R25 Post Recording, \$12.25; R200 silent film, \$10.80; R200 Post Recording, \$13.75. Film prices include processing. For more information, write to: Fuji Photo Film Co., Ltd., 350 Fifth Avenue, New York, NY 10001. ✉

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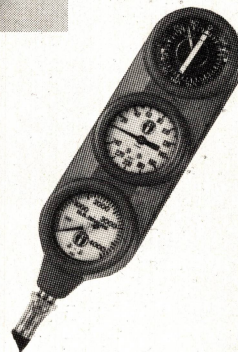
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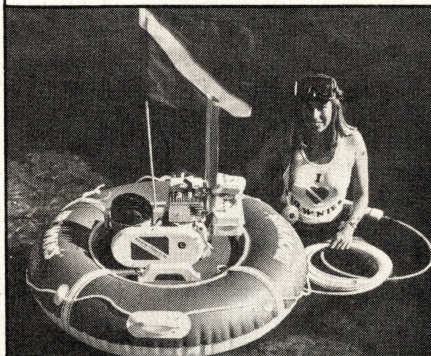
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CAVERN DIVING COURSE

The National Association for Cave Diving will introduce a Cavern Diving Course this month in response to the increased popularity of this demanding sport.

Over the years the NACD has been involved in teaching divers and instructors the skills needed to survive in the specialty of cave diving. The prime objective and goal of the organization is to promote safety and education. This training has worked well and the death toll has taken a sharp drop for those who have taken a cave diving course.

The NACD has asked its instructor group to put aside the weekend of June 20-21 to train and educate cavern divers. If you dive in freshwater springs, sink holes, caverns or quarries, take advantage of this one time offering.

Participants should send for a registration form and a list of gear needed to take the course. (Include a stamped, self-addressed envelope along with your name, phone number and list of present certifications.)

Please send inquiries to NACD, P.O. Box 1518, High Springs, FL 32643; Attention Ron Menke.

DIVER RESCUE WORKSHOP

The sixth annual Sonoma County Rescue Workshop will be held September 26-27, at the Santa Rosa Junior College in Santa Rosa, California.

For further information and registration forms, send a self-addressed envelope with 36¢ postage before Sept. 1, to: Sonoma County Diver Rescue Workshop, P.O. Box 3967, Santa Rosa, CA 95402, Attention: Mel Cumins.

Staff training for the workshop will be held on September 25, 1981, at 5:00 pm at the Santa Rosa Swim Center. Interested instructors and assistant instructors wishing to work on staff contact (before August 1): Rich Peters, 3504 Flintwood Dr., Santa Rosa, CA 95404, or call (707) 527-5291.

TEXAS SCUBA SHOP

Texas Scuba, Inc. has opened its second dive store, in the Woodlands-Conroe area north of Houston. Located in the 10 Oaks Shopping Center on IH-45 at Robinson Road, Store No. 2 will be full service, offering lessons, sale of new and used equipment, rentals, repairs, air, Gulf dives, photography and international trips.

The manager for the new store, L. Brian Robinson, is a 21 year old SSI Advanced Open Water instructor. For the last two years he has been assistant manager at store No. 1 on F.M. 1960 West.

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At the 1981 DEMA show held in Las Vegas, AMF Swimaster presented the Number One Dealer award to Scuba Sports of Miami. Scuba Sports has three stores in Miami area; Perrine, Plaza S.

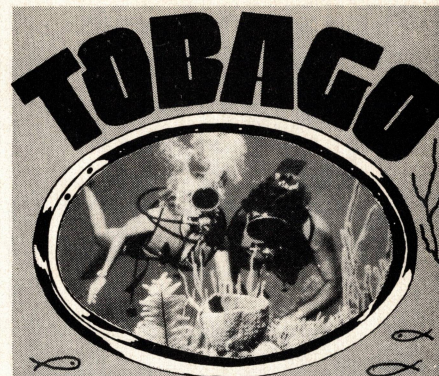


Miami, and N. Miami Beach. Barry Zuccharini, sales manager and Ed Dunn, direct marketing manager for AMF were on hand to present the award, for the third straight year, to Len Panich, president and Henry DelCampo, vice president of Scuba Sports.

NONSTOP BONAIRE

ALM Antillean Airlines has added more nonstop flights between Miami and Bonaire, Netherlands Antilles.

Flights now depart Miami on Saturdays and Sundays at 4:45 pm and reach Bonaire at 7:30 pm. Weekdays, Bonaire will have the same plane service via Curaçao, departing Miami at 3:15 pm.



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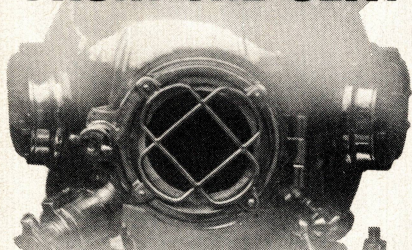
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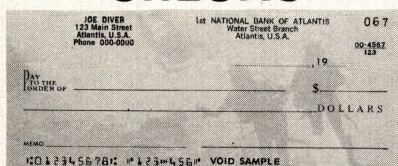
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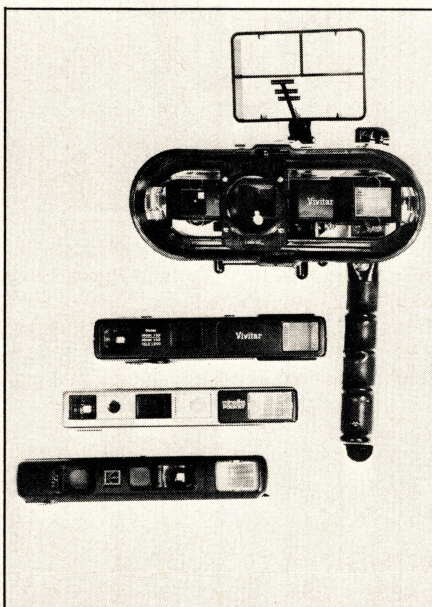
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110 U/W

(Continued from Page 34)

water as possible between camera and subject produces sharper photographs, because water, no matter how clear it looks, contains particles which tend to make photographs appear soft and fuzzy. Closer, the built-in electronic flash is used to its best advantage to properly light the subject, bringing out



Vivitar, Minolta, Kodak and other brands of 110 cameras can be used in Ikelite housings.

details and, most importantly, vivid colors. The close-up accessory lens slides out of the way for photographs beyond five feet.

To assist beginning underwater photographers, this author has written a book devoted entirely to using 110 cameras underwater. *Underwater Photography with 110 Pocket Cameras* is an easy to follow "how to" book that covers all aspects of using 110 cameras underwater in the Ikelite Trimcase. This book is available through your local dive shop.

After testing several of the latest model cameras, housings, and accessories, the 110 system has proven it can offer quality underwater photographs never before available from an extremely simple, inexpensive camera system. Beginning underwater photographers now have a system available that they can enjoy using and from which they can expect exceptional photographic results.

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made a dive 300 feet down in Lake Ontario to examine the wreck of the *Hamilton* and the PDS team was there to assist the saucer if it became entangled in the wreck.

The *Hamilton* and the *Scourge* were American ships from the War of 1812 and they sank together during a sudden squall in 1813. They were discovered in 1975 after some 19th century coins washed ashore in Western Ontario. The *Hamilton* is incredibly well preserved and virtually intact with skeletons, muskets, cutlasses, sea chests — even some cloth on the rigging — still in place after 167 years under water. ➤

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While planning a successful dive for continuous underwater backgammon, the UMO Scuba Club members realized the need for a central source of information on U/W records. No organizations have been found to sanction and verify these (not even the *Guinness Book of World Records*).



Hyland Cohen gives the victory signal from inside the tank as Mark Gilchrest holds the game board he made for the marathon.

If you have information on other U/W records or desire further details on the backgammon record, contact the UMO Scuba Diving Club, c/o Student Activities Office, Memorial Union, University of Maine at Orono, Orono, Maine 04469. ➤

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AL GIDDINGS

A Meteoric Career From Dive Shop Owner To Emmy Award Winner

By Hillary Hauser

Last summer, ABC-TV network broadcast a two hour special entitled, *Mysteries of the Sea*. An estimated 40 million viewers watched it. In the fall, the Academy of Television Arts and Sciences awarded an Emmy to that program for best cinematography. Al Giddings was first cameraman of *Mysteries* as well as director/producer.

The award was a tribute to a film career that began in 1960. Al Giddings' first underwater film, *The Beckoning Sea*, was photographed with a hand-wind 100 foot-load Bolex camera. He showed the film at the Santa Monica Film Festival and at other conventions around the country and at the same time he bought the Bamboo Reef dive store in San Rafael. Then he began to design camera housings. It was his love of the sea and his desire to share photographically his underwater experience with others that made Al Giddings instrumental in the evolution of the underwater camera.

His own evolution in the film business has culminated as of today in an impressive collection of credits. Al was co-director of underwater photography for *The Deep*, he directed and filmed the under-ice sequences for *Damien*, *Omen II*, and he worked on the Burt Reynolds film, *The End*. For television he co-directed and filmed the National Geographic special, *Dive to the Edge of Creation*. His contributions to still photography include the National Geographic book, *Exploring the Deep Frontier*, which he co-authored with Dr. Sylvia Earle; the September, 1980, National Geographic magazine article, Undersea World of a Kelp Forest; and numerous other major magazine articles.

Al's most recent project is the new James Bond thriller, *For Your Eyes Only*. He directed and filmed both topside and underwater scenes for the sequences in the Bahamas.

We interviewed Al in San Francisco, his home and base operations. Although he

was about to leave for the Bahamas, he took the time to show us the blueprints for the underwater set of the Bond film, and to talk with us about his work and his feelings for the sea. Al is enthusiastic whether he is talking about a major Hollywood film or a tiny sea creature, because he is enthusiastic about the ocean and it remains his number one love. His early days of underwater filmmaking hold special significance for him because in one respect they are today's yardsticks of growth and in another respect they are simply fond memories of yesterday's approach to the whole problem of filming underwater.

SDM: How about your latest project?

AL: *For Your Eyes Only* is the title of the latest James Bond thriller which we've just completed with 100 days of shooting. We had a crew of approximately 100 people and we produced four very exciting sequences. For two of them we constructed a full scale Greek Temple at a depth of 50 feet. This open sea set is, I'm sure, the largest ever constructed. It was about 45 feet wide, 130 feet long, with 30 foot high columns and mosaic tile floor. It represents an underwater archaeological site under excavation. There is also a 22 foot submarine, some very lively tiger sharks, and with Oceaneering's JIM suit and Graham Hawkes' Mantis, we have a unique underwater situation — dynamite action.

SDM: You built sophisticated cameras for the shooting of *The Deep*. Did you improve these for the Bond picture?

AL: Yes, dramatically. Our latest system employs an optically modified lens and a special new housing. The widest Panavision lens used on *The Deep* was approximately 70 degrees. Our new camera and lens covers 100 degrees plus, and is extremely fast, 1.4. I was really pleased with the public response to the underwater footage in *The Deep* and felt we had advanced the state of theatrical underwater

shooting several generations. With our latest wide-screen 35mm system I feel that we're again making a terrific optical advance. I think you'll agree once you've seen the film that the underwater material

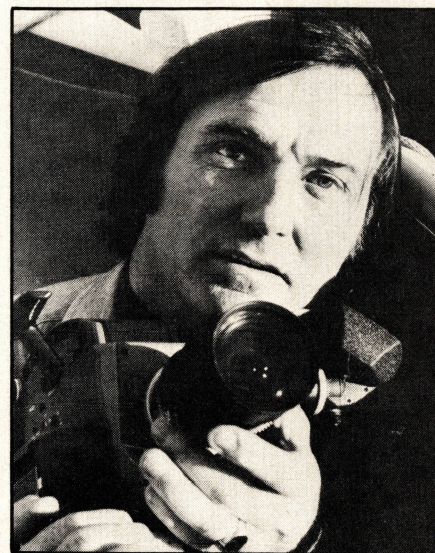


photo by Walt Clayton/Ocean Films, Ltd.

Giddings: "I think the sea can use as many champions as it can martial at this point."

is very special.

SDM: You have some new techniques for underwater filming, too, as I understand it. How about that slow-motion segment in *Mysteries* where the eyes of the white shark roll back?

AL: The white shark material in *Mysteries of the Sea* graphically illustrates what exciting things can be recorded on film when you run cameras at higher speeds like 200 or 400 frames per second. One of our newest underwater 16mm reflex systems now has that capability. Most sharks have membranes that cover their eyes when they strike, when they're feeding. The great white does not, which I find really amazing. Shooting at 200 frames per second, we could see the entire eye-



Al Giddings, protected by a shark cage, finds an aggressive great white shark near Dangerous Reef in South Australia.

photo by Pete Romano/Ocean Films, Ltd.

have superb underwater images whether they film whales in open seas or work in underwater theatrical sets like *The Deep*. Prior to *The Deep* no one had ever produced a major Hollywood film with 50 percent of the material underwater. At times Stan Waterman, Chuck Nicklin and I would run three cameras simultaneously using three different focal length lenses, all with reflex viewing. Today we employ all the tools and have all the advantages that a creative topside director or cameraman has.

SDM: How do you feel about being involved in theatrical films, such as *For Your Eyes Only* or *The Deep*, as opposed to documentary films?

AL: The theatrical films are very challenging and rewarding, but my first love has always been specials on the sea and its varied subjects. *Dive to the Edge of Creation*, the National Geographic one-



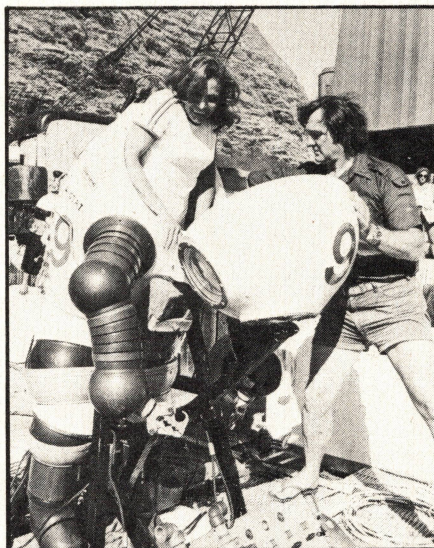
photo courtesy of Ocean Films, Ltd.

Peter Guber, of PolyGram Pictures, and Al Giddings discuss a film sequence.

ball rotate, exposing the backside of the eye to the victim or object which the animal is attacking. Exciting details such as that would never be seen at regular camera speeds.

SDM: *Mysteries* was well received. Are you seeing more and more public interest in the underwater world?

AL: No question about it. I'd say that in the last four or five years the public interest has increased tenfold. But I would also add that during the last four or five years the degree of photographic excellence has reached new plateaus. Film emulsion and the proper use of light are a couple of areas that have greatly improved. I think Hollywood film producers and directors are now aware they can



photo/Ken Sakamoto

Al Giddings assists Dr. Sylvia Earle into the sturdy one-atmosphere dive suit, JIM.

hour special, is a classic example of the cutting edge of adventure and filmmaking. Co-directing and filming with people like Jim Lipscomb — that's always terrific. I had the privilege of making nine dives, for that film, in the Woods Hole submarine *Alvin* — for a total of 81 hours at 8400 feet in the Galapagos deep rift valley. We used the latest video equipment and 16mm cameras. It was a filmmaker's dream. There is little question that *The Deep* was challenging. We had as many as 23 people in the water at once, at 80 feet inside a wreck. That was something. But the first time you are in the water with a 50 ton humpback whale and her baby calf, filming from 30 feet away, well, you never forget it. Those are

the moments you dream about.

SDM: What new projects are you planning?

AL: *The World Darwin Never Saw* is the title of a film project that is currently being discussed. *Return to the Deep* is in third rewrite, I believe, and a few of us have been mumbling *Titanic* for the last year. I have a screenplay of my own in the works.

SDM: You have talked in the past about a need for an ocean ethic. What are your views about the health and condition of the ocean, as a whole?

AL: I'm not qualified to make any conclusive scientific statements, but I feel that we face a number of eleventh hour situations. I foresee a possible stampede by many nations to reap the greatest harvest possible in the shortest period of time. In some areas the over-harvesting is already out of control. There's very little meaningful international legislation and certainly there's a lack of international cooperation. You know, eight years ago a lobster on the menu was \$8. Then the price was \$12, then \$14, then \$16. Today the menu reads, "Price on request." It's really scary, when you look at the price that's being paid for protein from the sea. And how much are we cultivating? Almost nothing. We harvest wild stock almost exclusively. We're taking the virgin breeding stock. That's why I feel the ocean environment can use as much visibility as possible and the most effective device I know of is television.

SDM: You started with a hand-wind camera in 1960, making your first underwater film. Do you have any personal feelings about your own progress — how far you've come in 20 years?

AL: To some degree I miss the childlike excitement that I had earlier in life. It was wonderful, everything was new, magical. Twenty years ago, to put a regulator in your mouth and just breathe underwater was magic. But to go to the bottom and come back, not with a speared fish but with an image you could share with people — that was really mind-boggling. I still remember the first underwater photograph I sold to *Motor/Land Magazine*, the auto club publication. It was a 35mm shot of a perch over a rocky outcropping at Catalina. They paid me \$30 for it.

SDM: And your equipment inventory today?

AL: Well, we have three 35mm Panavision underwater systems, four Cinema Products 16mm systems, several high-speed units, our own editing machines, a complete machine shop, an enormous stock footage library, approximately 30,000 transparencies on file, and so on. We have a talented group here, and we undertake all facets of film production — documentary or theatrical, topside or underwater, the whole thing. We provide post-production, writing if necessary, underwater stunt work, lighting gear, special props — whatever is needed. »

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Pennekamp Charter & Tours Our Specialty. Est. 1962
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KEY LARGO — 2 bedroom/2 bath waterfront/sleeps 5.
\$350 a week. Dock/dive boat available. Minutes to
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AQUAVENTURE—Rowling & Euclid, Arl. Hts, IL 398-5139
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Aqua Craft-Wenoka-Air-Rentals-Accessories

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NAUI Instructions

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12003 S. Cicero, Alsip, IL 312/371-3366
1717 Rand Rd., Palatine, IL 312/358-3848

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For Boston and Cape Ann Call 617/277-2216

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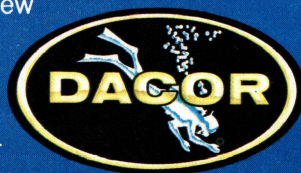


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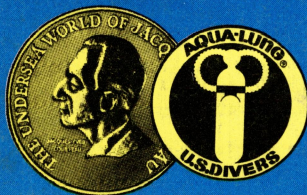


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